



Dolphin® 7400/7450  
Hand Held Computer  
*User's Guide*



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## *Patents*

The Dolphin 7400 mobile computer is covered by the following U.S Patent: D439,898 S.

The IMAGETEAM 4250 image engine is covered by one or more of the following U.S. Patents: 3,991,299; 4,570, 057; 5,021,642; 5,038,024; 5,081,343; 5,095,197; 5,144,119; 5,144,121; 5,182,441; 5,187,355; 5,187,356; 5,218,191; 5,233,172; 5,258,606; 5,286,960; 5,288,985; 5,420,409; 5,463,214; 5,541,419; 5,569,902; 5,591,956; 5,723,853; 5,723,868; 5,773,806; 5,773,810; 5,780,834; 5,784,102; 5,786,586; 5,825,006; 5,837,985; 5,838,495; 5,900,613; 5,914,476; D400,199; 5,292,418; 5,932,862; 5,942,741; 5,949,052; 5,965,863; 5,992,744; 6,045,047; 6,060,722.

Other U.S. and foreign patents pending.

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## Introduction

Congratulations on the purchase of your new Dolphin® 7400/7450 hand held computer. You have made a wise choice in selecting the Dolphin, a device known worldwide for its ergonomic shape, light weight and single-handed data collection features. The patented shape of the Dolphin 7400 allows true, one-handed operation and fits either hand comfortably, while the Dolphin 7450's integrated pistol-grip handle provides comfortable ergonomics and intuitive point-and-shoot scanning for extended periods of use.

Built to last, the Dolphin's ruggedly built case houses a 206MHz RISC processor and Microsoft® Windows® CE™ operating system that is easily programmable with standard programming tools, Microsoft® Windows® CE™ eMbedded Visual Tools (includes eMbedded Visual C/C++® and eMbedded Visual Basic®) or Java™. Dolphin 7400 supports Insignia Solutions® Jeode™ Java Virtual Machine to run Java-based applications on the terminal. The terminal provides ample, secure storage for data and applications with its 32 MB RAM and 32 MB FLASH memory configuration. Up to 256MB additional memory for data storage is available with an optional compact flash card.

The Dolphin 7400/7450 terminals are some of the most durable devices available, designed to withstand repeated five-foot drops onto a concrete floor. The terminal also resists extreme temperatures, humidity levels and dust conditions.

The Dolphin's collection of features also includes: long-lasting Nickel Metal Hydride (NiMH) batteries; a large easy-to-read 240 x 320 1/4 VGA backlit display that can display text or graphics; a natural scan and viewing angle; a low-power, high-resolution digital image engine for omni-directional and auto-discrimination decoding of linear bar codes; Stacked Linear and matrix codes and provides OCR (Optical Character Recognition) functionality and an optional Advanced Long Range laser scanner. The Dolphin 7400/7450 also has 802.11b direct sequence and frequency hopping spread spectrum radio options for real-time data collection applications.

Load up the Dolphin with your custom software application and the ultimate data collection solution for your business fits in the palm of your hand.

The Dolphin 7400/7450 hand held Computer/HomeBase™ User Guide is designed to provide you with the information you need to make the most of your new Dolphin terminal. Sections on the basics, safety, battery use, accessories, and service make this guide a complete source of information.

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## Safety

The Dolphin 7400/7450 hand held computer meets or exceeds the requirements of all applicable standards organizations for safe operation. However, as with any electrical equipment, the best way to ensure safe operation is to know the possible risks. The following safety guidelines are designed to protect both you and others around you. Please read them carefully before using your Dolphin terminal.

### Required Safety Labels

#### Batch Terminals

The following is the required safety label that appears on the back panel of Dolphin 7400/7450 batch terminals equipped with an imager:



The following is the required laser safety label that appears on the back panel of Dolphin 7400/7450 batch terminals equipped with a laser scanner:



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### *If Your Dolphin 7400/7450 has a radio*

The Dolphin® 7400/7450 RF terminal is designed to comply with the most current applicable standards on safe levels of RF energy developed by the Institute of Electrical and Electronics Engineers (IEEE) and the American National Standards Institute (ANSI) and has been recommended for adoption by the Federal Communications Commission (FCC).

The following is the the required safety label that appears on the back panel of the Dolphin 7400/7450 RF terminals equipped with a Cisco® 352 radio and an imager:



The following is the the required safety label that appears on the back panel of the Dolphin 7400/7450 RF terminals equipped with a Spectrum24® radio and an imager:



The following is the the required safety label that appears on the back panel of Dolphin 7400/7450 RF terminals equipped with a laser scanner:



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## *FCC Compliance*

### *Dolphin 7400/7450 Batch Terminal*

The Dolphin 7400/7450 Batch complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. Devices may not cause harmful interference.
2. Devices must accept any interference received, including interference that may cause undesired operation.

### *Dolphin 7400/7450 RF Terminal with Cisco® 352 or Spectrum24® (LA 3021) Radio*

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

In accordance with FCC 15.21, changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet helpful: "Something About Interference." This is available at FCC local regional offices. Our company is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by our company. The correction will be the responsibility of the user. Use only shielded data cables with this system.

In accordance with FCC 15.21, changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**CAUTION: To comply with FCC RF exposure compliance requirements, a separation distance of at least 2 inches (5 cm) must be maintained between the antenna of this device and all persons (excluding hands, wrists, feet and ankles), during normal operation.**

**This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.**

**This device is not specified or designed for body-worn configurations. Use of any body-worn accessories may not ensure compliance with the FCC RF exposure guidelines.**

## *Canadian Compliance*

This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions: 1. Devices may not cause harmful interference. 2. Devices must accept any interference received, including interference that may cause undesired operation. To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

## Regulatory and Safety Agency Approvals


Parameter	Specification
U.S.A.	FCC Part 15, Class B
Canada	IEC 0003
Europe	EN 55022 (CISPR22) Class B ETS 300 826 Type Certified
Mexico	NOM Certified
Others	EMC 89/336/EEC EN 50082-1:1997, EN55024
RF Approvals	
U.S.A	FCC Part 15.247
Canada	RSS 210 Certified
Europe	ETS 300 328 Certified
Mexico	Telecom RCPHAD002-485

The CE mark on the product indicates that the system has been tested to and conforms with the provisions noted within the 89/336/EEC Electromagnetic Compatibility Directive and the 73/23/EEC Low Voltage Directive.

### ***Dolphin 7400/7450 RF Spectrum24® 3021 R&TTE Compliance Statement***

The Hand Held Products Dolphin 7400RF and Dolphin 7450RF are in conformity with all essential requirements of the R&TTE Directive (1999/5/EC). This equipment has been assessed to the following standards:

Parameter	Specification
R&TTE	EN 300 328-2:2000 EN 301 489-1 (August 2000) EN 301 489-17 (Sept 2000) EN 60950: 1992 Incl Amdt 1-4,11 EN 50361: 2001

This product is marked with **CE168**  in accordance with the Class II product requirements specified in the R&TTE Directive, 1999/5/EC.

The equipment is intended for use throughout the European Community, but its authorisation for use in France is restricted as follows:

PAN European Frequency Range: 2.402 - 2.480 GHz

Restricted Frequency Range for use in France: 2.448 - 2.480 GHz

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## ***Dolphin 7400/7450 RF Cisco® 352 R&TTE Compliance Statement***

The Hand Held Products Dolphin 7400RF and Dolphin 7450RF are in conformity with all essential requirements of the R&TTE Directive (1999/5/EC). This equipment has been assessed to the following standards:

<b>Parameter</b>	<b>Specification</b>
R&TTE	EN 300 328-2:2000 EN 301 489-1 (August 2000) EN 301 489-17 (Sept 2000) EN 60950: 1992 Incl Amdt 1-4,11 EN 50361: 2001

This product is marked with **(CE 336 !)** in accordance with the Class II product requirements specified in the R&TTE Directive, 1999/5/EC.

The equipment is intended for use throughout the European Community, but its authorization for use in France is restricted as follows:

PAN European Frequency Range: 2.402 - 2.480 GHz

Restricted Frequency Range for use in France: 2.448 - 2.480 GHz

For further information please contact,

HHP EMEA

Nijverheidsweg 9

Eindhoven , 5627 BT

Netherlands

Canadian Radio certification: 1693 B12143

HHP shall not be liable for use of our product with equipment (i.e., power supplies, personal computers, etc.) that is not CE marked and does not comply with the Low Voltage Directive.

### ***Pacemakers, Hearing Aids and Other Electrically Powered Devices***

Most manufacturers of medical devices adhere to the IEC 601-1-2 standard. This standard requires devices to operate properly in an EM Field with a strength of 3V/m over a frequency range of 26 to 1000MHz.

The maximum allowable field strength emitted by the Dolphin is 0.3V/m according to Subpart B of Part 1 of the FCC rules. Therefore, the Dolphin RF will have no effect on medical devices that meet the IEC specification.

### ***Microwaves***

The radio in the Dolphin RF terminal operates on the same frequency band as a microwave oven. Therefore, if you use a microwave within range of the Dolphin RF terminal you may notice performance degradation in your wireless network. However, both your microwave and your wireless network will continue to function.

The Dolphin Batch terminal does not contain a radio, and therefore, is not affected by microwave ovens.

### ***Batteries***

The following are general guidelines for the safe use and disposal of batteries:

- Use only the battery supplied with your Dolphin or a replacement battery supplied, recommended, or approved by HHP.
- Replace a defective battery immediately as it could damage the Dolphin terminal.
- Never throw a used battery in the trash. It contains heavy metals and should be recycled according to local guidelines.
- Don't short-circuit a battery or throw it into a fire. It can explode and cause severe personal injury.

- 
- Excessive discharge damages a battery. Recharge the battery when your Dolphin indicates low battery power.
  - Although your battery can be recharged many times, it will eventually be depleted. Replace it after the recommended usage period (about 600 charge cycles for the 2700 mAh NiMH battery) or if the battery is unable to hold an adequate charge.
  - If you are not sure the battery or charger is working properly, please send it to Hand Hand Products or an authorized HHP service center, for inspection.

The Dolphin hand held computer meets or exceeds all applicable standards and has been manufactured to the highest level of quality.

### ***Care and Cleaning of the Dolphin***

When needed, clean the image engine/laser scanner window and the LCD display with a clean non-abrasive, lint-free cloth.





## Getting Started

The Dolphin® 7400/7450 is a hand held computer/imager designed for easy, single-handed data collection. The terminal is equipped with a StrongARM™ 206MHz RISC processor built to run the Windows® CE™ operating system.

Dolphin 7400/7450 hand helds are available with different types of 2D imagers, wireless radios, and memory configurations to meet most any automated data collection requirement. Dolphin 7400 hand held computers may also be equipped with a low power, high speed, V.90 56K FAX/modem to allow communications via an analog phone line.

The Dolphin 7450 terminal's integrated pistol-grip handle provides comfortable ergonomics and intuitive point-and-shoot scanning for extended periods of use.

Offered with a memory configuration of 32 MB RAM and 32 MB FLASH, the device has three keyboard options and a 240 x 320 pixel, backlit 1/4 VGA display. The display also is available with a touch screen.

The Dolphin 7400/7450 platform is equipped with an integrated imager. The imager can take images like shipping manifests, recipient signatures, while at the same time, decode OCR (Optical Character Recognition) fonts. The imager can also decode standard linear and two-dimensional symbologies. An optional Advanced Long Range laser scanner is also available for both terminals.

### *Accessories for the Dolphin 7400/7450*

The Dolphin 7400/7450 is part of a data collection system that includes accessories specifically designed for vehicle, desktop and hub operations. Accessories available include serial and networkable communications/charging cradles, vehicle mounted charging/communication cradles.

You can use these accessories with the Dolphin:

**Dolphin HomeBase™** Dolphin terminal charging and communication cradle, includes power adapter.

**Dolphin IntelliBase™** Dolphin terminal charging and communication cradle for communicating with devices such as printers and modems without integrated IrDA protocol software, includes power adapter.

**Dolphin USB HomeBase** for communicating directly with a USB-compatible host computer, includes power adapter.

**Dolphin IntelliBase+™** for communicating with devices such as printers and modems without integrated IrDA protocol software, and for charging and conditioning a spare battery, includes power adapter.

**Dolphin Quad Battery Charger™** Charges four batteries in under three hours and conditions in under eight hours.

**Dolphin HomeBase™ Power Adapter** Replacement power adapter for Dolphin HomeBase.

*Note:* Use only power adapters approved for use by HHP. Failure to do so may result in improper operation or damage to the unit and will void the warranty.

**NiMH Battery Pack** Nickel Metal Hydride (NiMH) 2700mAh rechargeable battery for the Dolphin.

**RS-232 Serial Cable** Allows Dolphin 7400 to connect to other computer systems for file transfer or to connect Dolphin 7400 terminal using the terminal's serial RS-232 interface.

Contact your Value-Added Reseller for more information. For details about how to install or use any of these accessories, refer to the documentation provided with the product. Documentation may also maybe downloaded from our website, [www.hhp.com](http://www.hhp.com).

### *Dolphin 7400 Models and Options*

Hand Held Product's family of Dolphin 7400 hand held portable data collection terminals includes these models:

The **Dolphin® 7400 Batch** terminal is a Windows® CE™ programmable hand held computer with a unique, ergonomic shape designed for single-handed use. The standard Dolphin 7400 is available with 32 MB RAM and 32 MB FLASH and an integrated digital imager or Advanced Long Range (ALR) laser scanner. An optional compact FLASH card offers up to 256MB of additional memory. The terminal's RS-232 connector supports external plug-in scanners, land line modems and printers. It also features an IrDA infrared transceiver for data communicate to portable printers and cradles.

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The **Dolphin® 7450 Batch** hand held computer offers the same enhanced productivity features of the Dolphin® 7400 terminal with the added convenience of a pistol grip-style form factor for high volume scanning applications.

The **Dolphin® 7400 RF** and **Dolphin® 7450 RF** terminals integrate the basic functionality of the Batch terminals with the choice of an 802.11b direct sequence radio or frequency hopping radio that allows the terminal to communicate with a host computer via a radio wireless local area network (WLAN).

## ***Image Engine Options and Bar Code Symbologies Supported***

Dolphin 7400/7450 terminals may be equipped with one of three image engines options:

- LX: red or green aimer option scans from 2.0 to 15.0 in. (5.1 to 38.1 cm.)
- LR: red or green aimer option scans from 1.9 to 9.4 in. (4.8 to 23.9 cm.)
- HD: red or green aimer option scans from 1.6 to 3.9 in. (4.1 to 9.9 cm.)

1D symbologies supported are: Code 3 of 9, Interleaved 2 of 5, EAN, Codabar, Code 11, Code 128, Code 93, TLC39, Universal Product Code (UPC), RSS.

2D symbologies supported are: PDF417, MaxiCode, Data Matrix, QR, EAN.UCC, Aztec, Code 49.

Composite codes supported are: RSS-14, CODABLOCK, Aztec Mesa.

OCR codes supported include: OCR A and OCR B.

Postal codes supported include: Postnet and most international 4 state codes, PLANET CODE, BPO 4 STATE, Canadian 4 State, DUTCH POSTAL, AUSTRALIAN 4 STATE, JAPANESE POSTAL.

## ***Laser Engine Options and Symbologies Supported***

Dolphin 7400/7450 terminals may be equipped with an Advanced Long Range (ALR) laser engine. The ALR engine reads 30mil bar codes from 2.75 to 8 ft (0.83 to 2.4 m) and 100mil reflective bar codes out to 30 ft (9.1 m), making it ideal for use in warehouse applications.

1D symbologies supported are: UPC/EAN, Code 39, Interleaved 2 of 5, Codabar, Code 128, MSI, Plessey.

## ***Using Dolphin 7400/7450 for the First Time***

Follow these steps to begin using your Dolphin 7400/7450 terminal.

1. Unpack and check the terminal and documentation.
2. Charge the main battery pack and internal back-up battery.
3. Turn the Dolphin on.
4. Calibrate the screen, set the date/time, and user information.
5. Verify that the Dolphin 7400/7450 terminal is working properly.

### ***1 Unpack the Carton and Check Its Contents***

Inspect the package to see that the following standard items and accessories (if ordered) are included in the standard Dolphin 7400/7450 kit:

- Dolphin 7400/7450 hand held computer/imager/scanner
- Battery (2700 mAh, Nickel Metal Hydride [NiMH])
- Dolphin HomeBase
- RS-232 Serial Cable
- AC-DC Power Adapter for Dolphin Terminal/HomeBase
- Dolphin 7400/7450 Software Development Kit & User's Guide CD-ROM

**Note:** Be sure to keep the original packaging in the event that the Dolphin terminal or HomeBase should need to be returned for service.

---

## ***2 Charging the Main Battery and Backup Battery***

**WARNING** Use only 2700 mAh NiMH battery packs provided by HHP. The use of any other battery pack in the Dolphin terminal will void your warranty and may result in damage to the Dolphin terminal or battery.

The terminal's NiMH battery is not conditioned at the factory and is shipped discharged of all power and inserted in the Dolphin terminal.

**WARNING** Although the Dolphin 7400/7450 terminal is received with the battery inserted, it is **NOT** ready for charging and/or deep-cycling. Remove the plastic insulator located between the terminal and battery connectors. Failure to remove the insulator may result in damages to the terminal.

For maximum battery life, HHP recommends that you deep-cycle the battery **twice** before initial use. It is also recommended that you service the battery once per month. Refer to the section on Managing Battery Power in Chapter 3 for further information on deep-cycling the battery.

After deep-cycling the battery, the terminal's NiMH battery must be charged before using it for the first time. To charge the main battery pack:

1. Place the main battery pack in the Dolphin 7400/7450 terminal.
2. Place the terminal in the terminal well of the Dolphin HomeBase™. Time to Charge: 3.5 hours for the main battery; 8 hours for the back-up battery

As the main battery pack charges, the internal back-up battery also charges. For the initial charging cycle, it is recommended that the terminal be charged for approximately 8 hours to allow adequate charging time for the back-up battery. Not doing so may result in the terminal becoming unstable should the unit lose power and the back-up battery is required. The back-up battery maintains the RAM and clock when the NiMH main battery pack is discharged or removed from the terminal.

### ***Removing the Battery Pack***

**Follow these steps to remove the Dolphin battery pack.**

1. Hold the Dolphin with the front panel (keyboard) facing down.
2. On the 7400, remove the handstrap by pushing its clip down and forward to unhook it from the terminal; move the strap away from the battery compartment.
3. Push the locking tab on the battery pack up and pull the battery out from the Dolphin terminal with a hinging motion.

### ***Installing the Battery Pack***

**Follow these steps to install the Dolphin 7400 battery pack.**

1. The Dolphin 7400 ships with the handstrap installed. Hold the terminal with the front panel (keyboard) facing down. Push the clip of the handstrap down and away from the terminal to unhook it; move the strap up and away from the battery compartment.
2. Insert the end without the locking tab into the top of the battery opening and snap the battery into place with a hinging motion. Press the battery into the well until the clip is engaged. The battery case serves as the back cover of the Dolphin.
3. Reattach the handstrap by positioning it down over the battery case and sliding the clip back into the place at the bottom end of the 7400.
4. The terminal will initialize and, after a few seconds, will show the splash screen for the Dolphin 7400 demo program.

**Follow these steps to install the Dolphin 7450 battery pack.**

1. Hold the terminal with the front panel (keyboard) facing down.
2. Insert the end without the locking tab into the top of the battery opening and snap the battery into place with a hinging motion. The battery case serves as the back cover of the Dolphin.
3. The terminal will initialize and, after a few seconds, will show the splash screen for the Dolphin 7400 demo program.

---

### *3 Turning the Dolphin On And Off*

#### *Turning the Dolphin On For the First Time*

Turning on the Dolphin 7400/7450 for the first time is a **cold boot**. Follow these steps to turn on your Dolphin 7400/7450 terminal.

1. Install the charged battery pack in the Dolphin.
2. The red LED will come on and the green LED will blink for approximately three seconds.  
NOTE: DO NOT PRESS ANY KEYS WHILE THE TERMINAL IS BOOTING UP.
3. The terminal will initialize and after a few seconds will display the splash screen shown below:



**Dolphin 7400/7450 Splash Screen**

#### *Waking the Dolphin From Sleep Mode*

The Dolphin 7400/7450 terminal is never actually turned off. To conserve power, the Dolphin suspends operation, or goes into "sleep mode" when it is inactive for a programmed period of time, as defined by your application. The screen is blank when the Dolphin is in "sleep mode." Press the ON/SCAN key to wake the Dolphin terminal from sleep mode, and you can start working where you left off.

The Dolphin terminal also goes into sleep mode if you remove the main battery pack. To wake the Dolphin terminal from sleep mode, install a charged battery and press the ON/SCAN key.

**WARNING** If the main battery and back-up battery are ever fully discharged of power, the terminal will cold boot. The terminal will be restored to its original state. All data stored in RAM memory also will be lost.

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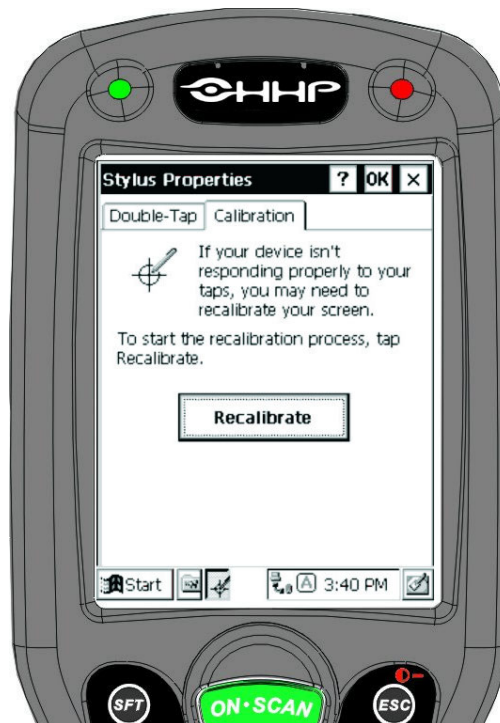
## 4 Calibrating the Screen, Setting the Date/Time and Modem (if equipped)

### Calibrating the Screen

If your Dolphin 7400/7450 is equipped with a touch screen, you must calibrate the screen after a cold boot. Calibration can also be performed by opening the "Stylus" folder in the Control Panel directory and choosing the "Calibration" tab. Follow the directions on the screen to calibrate the screen and keep the following points in mind:

- After the Welcome Splash Screen appears, you will be prompted to calibrate the screen. The Dolphin 7400/7450 terminal will display a cross-hair target and a message to "Tap the target firmly.....".
- Calibration should always be performed with a stylus designed for touch screen applications. The small point is required for accurate calibration.
- The stylus should be oriented at a 90 degree angle to the screen surface. Press the stylus firmly into the center of the cross-hair target and release. Do not "double-tap" the target. You will be prompted to repeat this process for a total of five targets. Press the <ENTER> key when complete in order to save the new calibration settings.
- It may also be necessary to calibrate the screen for the users preference of "double-tap" speed. If the Dolphin 7400/7450 does not respond properly to a "double-tap" on the screen, open the "Stylus" folder in the Control Panel directory and choose the "Double-Tap" tab. Double-tap the checkered square using your normal double-tap speed then verify by double-tapping the verification icon. This setting is also reset to factory default each time the terminal is cold booted and must be recalibrated by the user.
- After calibrating the screen, you will be prompted to set the date and time on the terminal.

*Note:* HHP recommends using screen protectors for Dolphin 7400/7450 terminals equipped with a touch screen display; especially for those terminals used for applications that require high-volume interfacing with the touch display. Screen protectors will help prevent damage to the touch panel display and are easily installed over the display. Screen protectors can be purchased at any major computer retail store.



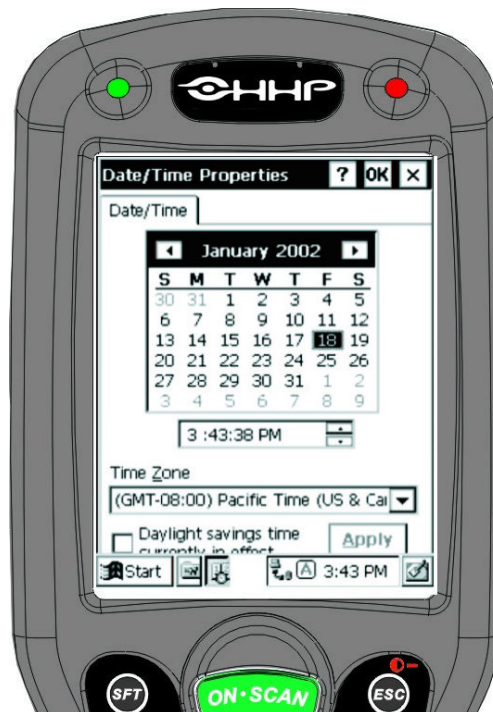
**Stylus Properties Screen**

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## Setting the Date/Time

Use the Windows® CE Date/Time function to set the correct date and time for your Dolphin 7400/7450 terminal. Use the Dolphin 7400/7450 mouse utility to navigate through the screens if your terminal does not have a touchscreen. For more information about the mouse utility, see Navigating the Keyboard in Chapter 4.

*Note:* Exit the mouse utility before adjusting the contrast.



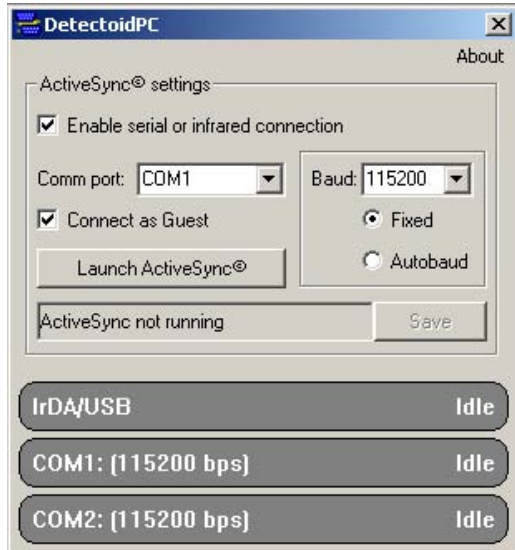
**Date/Time Properties Screen**

The Dolphin 7400/7450 Demo Program main menu appears after you set the date and time.

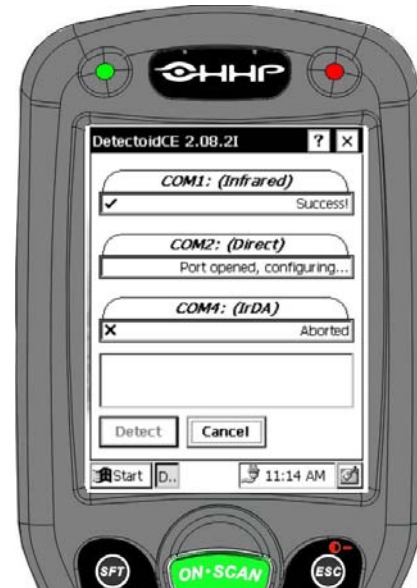
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## Setting Up Communications with Detectoid™

The Detectoid™ Communication Utility makes it easier to set-up communications between your PC and Dolphin 7300, 7400 or 7450 terminal. The utility has two components: DetectoidPC™ for setting up ActiveSync® on the PC and DetectoidCE™ for setting communication parameters on the Dolphin terminal.



DetectoidPC Screen as seen on Host PC



DetectoidCE Screen as seen on Dolphin 7400/  
7450

## Installing DetectoidPC™

The DetectoidPC.exe file is located in the \Utilities\PC directory on the user's CD that is shipped with the Dolphin terminal. Users may run the executable right from the CD-ROM, or they can copy it to their machine.

System requirements for installing DetectoidPC on your PC are:

Operating system: Windows® 98, 2000, or XP

Free disk space: Less than one megabyte

DetectoidPC is included with Dolphin 7400 and 7450 terminals using kernel 2.08 with Service Pack 2 or kernel 2.11 or later; and Dolphin 7300 terminals with kernel 3.02 or later.



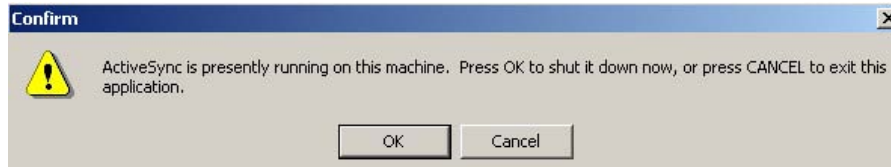
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## Using DetectoidPC™ and DetectoidCE™

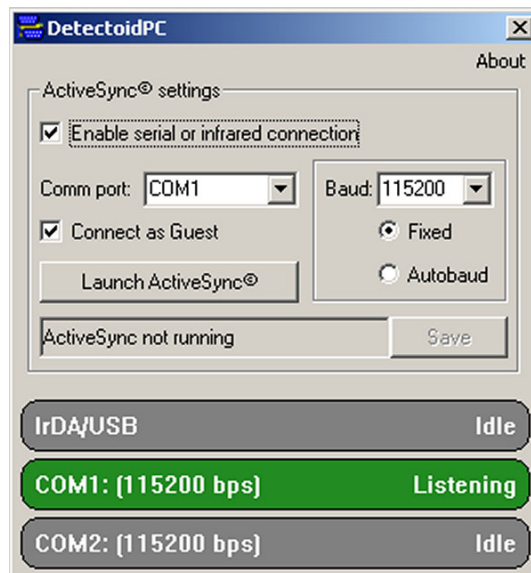
Use DetectoidPC to configure the ActiveSync® settings on your PC for communication with a Dolphin terminal. Detectoid PC sets the baud rate and configures the COM port for ActiveSync. Once the settings are configured, you can save them and your PC is always ready to connect with the Dolphin terminal.

Before starting, ensure that your Dolphin is connected via serial cable or docked in a working HomeBase or IntelliBase.

If ActiveSync is detected to be running on the PC when DetectoidPC is started, the following message will appear:



Click OK to continue using DetectoidPC to set up communication settings.



On starting, DetectoidPC will check for the availability of COM ports, as well as IrDA/USB support. Once the terminal is detected, the port status will change from "Idle" to "Listening" as shown in the screen shot above.



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## *DetectoidCE*

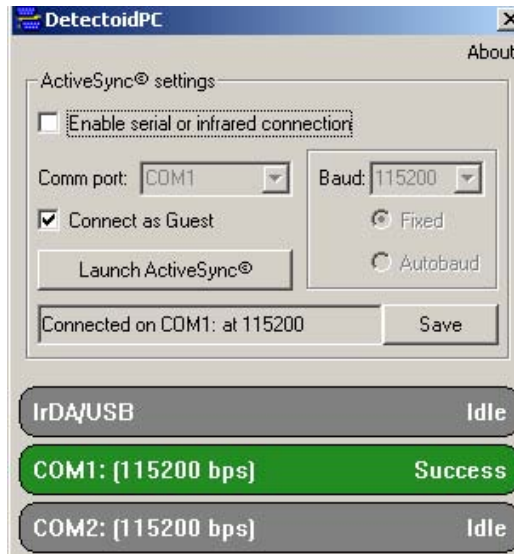
After running DetectoidPC, start Detectoid CE on the Dolphin terminal selecting **Start>Programs>HHP>DetectoidCE**.

DetectoidCE will attempt to find the connection with the PC. If successful, the discovered settings will be saved and the Communications Properties Launch window shown below will then display on your Dolphin. The default is “Start ActiveSync when the unit is docked or connected.” By choosing the default, ActiveSync will start automatically when the terminal is connected via a powered serial cable or docked in a powered HomeBase/IntelliBase. If you select “Do not automatically start ActiveSync”, you must manually start ActiveSync on the Dolphin terminal to establish communications (see Chapter 6).



If you want to go back and change the settings later, select **Start>Settings>Control Panel>Communication Properties** and select the Launch tab.

Once the communications parameters have been detected and configured, the status indicator will change to “Success”. Verify that the ActiveSync settings are correct, then click save to transfer those settings to ActiveSync.



Follow these steps to establish a connection for the first time after configuring the settings:

1. Select Launch ActiveSync in the DetectoidPC window.
2. Start ActiveSync on the Dolphin terminal.

Once parameters are configured and saved, you do not need to run DetectoidPC again unless you need to change the ActiveSync settings or cold-boot the terminal.

### ***Configuring the Modem***

If your Dolphin 7400 hand held computer is equipped with a modem, follow these configuration instructions. Use the Dolphin 7400 mouse utility to navigate through the configuration process if your terminal does not have a touch screen. For more information about the mouse utility, see Navigating the Keyboard in Chapter 4.

1. From the Start menu, select **Programs>Communication>Remote Networking**.
2. Select Make New Connection. Type in the name for the connection. Select Dial-Up Connection and touch Next.
3. Select the modem from the drop-down menu, CIRRUS LOGIC 56K MODEM or PCMCIA\_CARD\_MEMBER F56R\_NCTV2, and then touch Configure.
4. Set the option on Port Settings tab as shown below and then touch OK.



5. Touch Next and enter the country code, area code and phone number in the appropriate fields. Touch Finish and the terminal will return to the Connection window.

For information on using the modem, see Using the Modem in Chapter 4.

## ***5 Verifying that Dolphin 7400/7450 is Working Properly***

After the main battery pack is charged and installed and you have calibrated the the screen and set the time and date, the Dolphin 7400 terminal is ready to use. Choose the IMAGING DEMO or SCAN DEMO to verify that the terminal is operating properly.

### **Touchscreen-equipped terminals:**

To take an image:

1. Select IMAGE DEMO.
2. Press the <ON/SCAN> button and the image you take will appear on the terminal's screen.
3. Touch <ESCAPE> to go back to the main menu.

To scan a bar code label:

1. Select SCAN DEMO.
2. Press the <ON/SCAN> button, aim the terminal at a bar code and the red SCAN LED will illuminate. The green SCAN LED will illuminate and the terminal will beep when a good scan is obtained. Information about the bar code scanned will appear on the screen.
3. Press <ESCAPE> to exit the demo and return to the main menu.

### **Terminals without touchscreens:**

To take an image:

1. Using the Cursor keys, navigate down to the IMAGING DEMO button and press an <ENTER> key.
2. Press ON/SCAN button and the image you take will appear on the terminal's screen.

- 
3. Press <ESCAPE> to go back to the main menu.

To scan a bar code label:

1. Using the Cursor keys, navigate down to the SCAN DEMO button and press an <ENTER> key.
2. Press ON/SCAN button, aim the terminal at a bar code and the red SCAN LED will illuminate. The green SCAN LED will illuminate and the terminal will beep when a good scan is obtained. Information about the bar code scanned will appear on the screen.
3. Press <ESCAPE> to go back to the main menu.

### ***Resetting the Dolphin (Cold Boot)***

Under some conditions, you may need to reset the Dolphin 7400/7450 terminal with a cold boot. These may include:

- Resetting the operating system
- Resetting the terminal back to factory defaults
- Resetting the terminal after a bootloader, keyboard, and kernel upgrade.

To perform a cold boot:

1. Press and hold the Control (CTRL) and the Escape (ESC) keys for about 10 seconds.
2. Release the keys and the terminal will reset. The red LED will come on and the green LED will blink for approximately 3 seconds.
3. The terminal will behave as described in the section about Turning the Dolphin On for the First Time.

### ***Resetting the Dolphin (Warm Boot)***

There are times when you may need to warm boot the Dolphin 7400/7450 terminal, such as after loading a software application that requires a warm boot after installing new software. To warm boot the Dolphin 7400 terminal:

1. Press and hold the Control (CTRL) and the SHIFT (SFT) keys for about 10 seconds, then release.
2. Release the keys and the terminal will reset. The red LED will come on and the green LED will blink for approximately 3 seconds.
3. The terminal will initialize and after a few seconds will display the main menu screen for the Dolphin 7400/7450 Demo Program.

## ***Dolphin 7400/7450 Overview***

### ***System Features***

#### ***Processor***

The Dolphin® 7400/7450 terminal is equipped with a StrongARM® 206MHz RISC microprocessor that runs on a 100 MHz BUS and is the most powerful Windows® CE platform on the market.

#### ***Operating System***

Microsoft® Windows® CE is a compact, highly efficient, scalable operating system. Its open architecture and minimal memory requirements facilitate development of applications for energy-efficient data collection devices like the Dolphin 7400/7450 terminal. The graphical interface also makes the device more user-friendly.

#### ***Memory***

##### **Main Board**

The memory configuration for the Dolphin 7400/7450 terminals is 32 MB RAM and 32 MB FLASH.

##### **Compact Flash Card**

Dolphin 7400/7450 terminals have one Type I compact flash card socket for additional application and data storage capacity. Additional modular compact flash upgrades of 64 MB, 128 MB, and 256 MB are available through an authorized HHP service center. The compact flash card socket is not user accessible, to preserve the terminal's environmental rating.

#### ***Radio Options***

Dolphin 7400/7450 terminals have one Type II PCMCIA card slot to allow for an interface with wireless network adapter cards. Radio cards currently certified include the Cisco® 342 (FCC #LDK102035) and Cisco® 352 (FCC #HD5-7400-352) series network cards as well as the Spectrum24® (FCC #HD5-7400-3021) card .

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## Front Panel Features

This section describes features on the Dolphin 7400/7450 terminal front panel.



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## ***LEDs***

The red light emitting diode (LED) located at the upper right corner of the LCD display is SCAN LED. This LED illuminates when the user presses the ON/SCAN key and activates the scan engine. The green LED located at the upper left corner of the LCD display is DECODE LED. This LED illuminates when the bar code software successfully decodes a bar code. Both LEDs are software programmable.

## ***1/4 VGA Display***

The Dolphin 7400/7450 screen is a non-touch 240 x 320 pixel 1/4 VGA industrial protective lens display. The electroluminescent backlight allows you to view the display in low light conditions. To conserve power, the backlight may be programmed to automatically turn off after a prescribed amount of time. The contrast may be adjusted with the contrast keys. The Dolphin 7400/7450 display may be equipped with a touchscreen that can be activated with a stylus or finger.

## ***ON/SCAN Key***

The ON/SCAN key is centrally located for easy use with the right or the left hand. On the 7450 terminal, the ON/SCAN key operates as an On or system wakeup control; scanning is activated with the handle trigger.

## ***Cursor Keys***

The centrally located cursor keys allow full Windows® navigation.

## ***Audio Signals***

The Dolphin 7400/7450 terminal has an internal speaker that sounds audio signals as you scan bar code labels and enter data. Signals are emitted at a sound level of 80 dB sound pressure level at two feet. The operating frequency range is 500 Hz up to 8 kHz. The speaker can also be used for playing sounds using WAV files.

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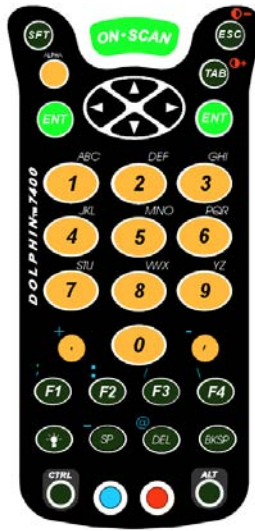
## Keyboard

The Dolphin 7400/7450 terminal's keyboard features epoxy-coated keys and is backlit for easy use in dark and dim lighting conditions. The keyboard's yellow background enhances the readability of the numeric keys. The centrally located ON/SCAN key and other important keys allow for easy imaging, bar code scanning and application navigation. All keyboard versions are suited for right-handed and left-handed use.

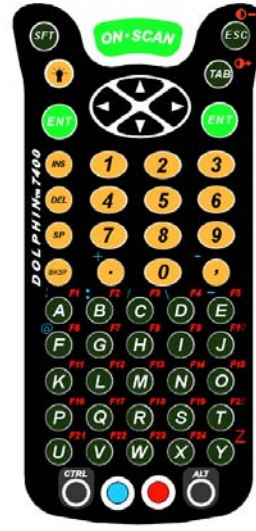
There are three keyboard options for the Dolphin 7400/7450 terminals: 43-key alpha/numeric, 35-key numeric/alpha and 56-key alpha/numeric.



43-key  
alpha/numeric keyboard



35-key numeric/alpha  
keyboard



56-key  
alpha/numeric keyboard

## RF Antenna

The Dolphin 7400/7450 RF terminal's antenna is a unity gain, quarter-wave, monopole antenna.



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## ***Back Panel Features***

This section describes features on the back panels of the Dolphin 7400 and Dolphin 7450 terminals.

### ***Dolphin 7400***

All versions of the 7400 terminal have similar back panels except for the safety labels specific to how the terminal is equipped.



### ***Image Engine***

Dolphin 7400/7450 terminals are equipped with an image engine that reads and decodes linear, stacked linear (PDF417) and 2D matrix bar code symbologies. With the latest CMOS-based technology, the engine works like a digital camera and adds functionality and value to the Dolphin 7400/7450 by adding additional capabilities, such as digital image capture, signature capture and reading OCR characters. Digital images taken with the 7400/7450 terminal have a maximum image size of 640 x 480 pixels and may have up to a 256 gray scale image definition. Files formats supported for image storage include Bitmap (bmp), JPEG (jpg) and Portable Network Graphics (png).

---

### ***Laser Engine***

Dolphin 7400/7450 terminals are also available with an optional Advanced Long Range (ALR) laser scanner for long range scanning applications prevalent in warehousing and distribution centers.

A clear window with anti-reflective, scratch-proof coating covers the image/laser engine to protect it from dust and dirt.

### ***Battery Well***

The Battery well is a recessed area on the back of the Dolphin that holds the 2700 mAh NiMH battery pack.

### ***Battery Charging Contacts***

When the Dolphin is placed in the main well of the Dolphin HomeBase, the Dolphin's battery pack is charged through these gold-plated contacts.

### ***Hand Strap***

The 7400 has an integrated elastic hand strap to provide the user with a comfortable, secure grip on the terminal. If desired, the strap may be removed.

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## *Dolphin 7450*

The bottom cover of the Dolphin 7450 terminal is similar to the Dolphin 7400 as described in the previous section with the following exceptions: the pistol-grip handle with imager/scanner trigger and the rubber bumpers. All versions of the 7450 terminal have similar bottom covers except for the safety labels specific to how the terminal is equipped.



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### ***Rubber Nose Bumpers***

Rubber bumpers allow the Dolphin 7450 to rest in a stable, nose-down position when the unit is set on a flat surface by the user.



### ***Scan Trigger***

The scan trigger provides comfortable two-finger scan activation.

### ***Pistol Grip Handle***

The comfortable, ergonomic handle is designed especially for use in rapid, high volume scanning applications and features rubber surface details for improved handle grip, comfort, and shock absorption.

### ***Communication***

#### ***Micro-DB9 RS-232 Port***

The industry-standard RS-232 port allows the user to connect with peripherals, such as printers, serial modems and desktop computers for serial communication to the Dolphin 7400/7450 terminal. The maximum speed is 115kbps with seven baud rate settings.

#### ***IrDA Port***

The IrDA (Infrared Communications) Port allows the Dolphin to communicate through the Dolphin HomeBase, IntelliBase and IntelliBase+ to host serial devices or IrDA printers. The maximum speed is 115kbps.

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## ***RJ-45 Phone Jack (7400 only)***

The optional phone jack is located on the back of Dolphin 7400 terminals equipped with a low power, high speed, V.90 56K FAX/modem to allow communications via an **analog** phone line.

**CAUTION: Only connect the modem to an analog phone line. Connecting to a digital PBX phone line could result in damage to the modem.**

## ***Power***

### ***5 VDC Port***

This port connects the Dolphin 7400/7450 to DC power for powering peripheral devices and charging the main and backup batteries.

Power is fed through the RS-232 communications port.

## ***Batteries***

**CAUTION: Use only the 3.6V battery packs provided by HHP. The use of any other battery pack in the Dolphin 7400 terminal will void your warranty and may result in damage to the Dolphin terminal or battery.**

There are two batteries in the Dolphin:

**Internal NiMH Backup Battery** Located inside the Dolphin, this battery backs up the RAM and clock when the NiMH main battery is discharged or removed from the terminal. The internal backup battery is not user replaceable.

**NiMH Battery Pack** The battery pack is the primary power source for operating the Dolphin terminal.

### ***Internal NiHM Backup Battery***

The Dolphin's internal backup battery prevents the terminal from being reset if you need to remove and replace the main battery pack. The battery retains RAM data and allows the real-time clock to remain operational for up to 30 minutes when the battery pack is removed. For the initial charging cycle, it is recommended that the terminal be charged for approximately 8 hours to allow adequate charging time for the back-up battery. Not doing so may result in the terminal becoming unstable should the unit lose power and the backup battery is required.

If the backup battery becomes discharged of power after the initial charge cycle, it will require a minimum of 5 hours of charging time to perform and maintain the system as described above.

The internal backup battery is charged by the Dolphin's main battery pack when an external power source such as the Dolphin HomeBase, is not available. If the terminal is left without the main battery pack for more than 30 minutes, the internal backup battery will need to be recharged.

**Note: Data and programs stored in FLASH remain safe even if the internal backup battery fails. However, you must reset the real-time clock using the Windows® CE Time and Date function.**

Follow these guidelines to maximize the life of the Dolphin's backup battery:

- Keep a charged NiMH battery pack in the Dolphin. The internal battery will prematurely discharge if there is not at least a partially charged battery in the terminal.
- Put the Dolphin in the HomeBase when the terminal is not in use.

### ***Main Battery Pack***

The 3.6V, 2700 mAh Nickel-Metal-Hydride (NiMH) battery pack is the primary power source for the Dolphin. Other NiMH batteries may be approved by HHP to work with your Dolphin. Contact HHP for more information.

The 2700 mAh NiMH battery is designed to operate in a temperature range of -10 to 50°C (14 to 122°F). For maximum performance, charge the batteries between 10 and 35°C (50 and 95°F).

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## *Managing Battery Power*

Data and files saved on the Dolphin 7400/7450 terminal may be stored in RAM, so it is important to maintain a continuous power supply to the terminal. When the main battery pack becomes low, the Low Battery Charge icon will appear in the notification tray at the bottom of the screen. The Critical icon will appear when the battery is critically low. There is also a Low Battery icon that will appear when the back-up battery is low.

Letting the back-up battery become fully discharged will cause the terminal to lose all data in RAM. Therefore, you should keep a charged battery pack in the Dolphin at all times to conserve the internal back-up battery. When you remove a battery pack, insert another charged pack in the Dolphin. The internal battery will prematurely discharge if there is not at least a partially charged battery in the terminal.

A battery status indicator will display in the notification tray when the battery is low or critically low. If there is no indicator, the battery is adequately charged.

If the main battery is low and the terminal is in sleep mode, pressing the ON/SCAN button or the scan trigger will not wake up the Dolphin 7400/7450 terminal; you must replace the discharged battery with a fully charged battery.

## *Setting Critical and Low Battery Points*

The Dolphin 7400/7450 may be programmed to display warnings when the battery reaches critical and low battery points. There are two entries defined in the registry. The specific settings are:

```
[HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Power]
```

```
"CriticalBatt"=dword:a
```

```
"LowBatt"=dword:19
```

```
"CriticalBatt"=dword:a
```

This sets the Critical Battery point to 10 percent (a hex = 10 decimal). The critical battery is the point at which the customer is warned that the battery charge is very low. This warning will be posted every 3 minutes until the situation is corrected.

```
"LowBatt"=dword:19
```

This sets the Low battery point to 25 percent (19 hex = 25 decimal). The low battery setting is the point at which the user is alerted that the battery is low. The user is notified only once for a low battery.

These are the default values. Developers can set these parameters from 0 (no warning at all) to 99 (would nearly always warn). The warnings do not appear when the terminal is on external power.

## *Using the Power Control Panel*

The Power control panel displays information about current battery status and allows you to set options that can conserve battery power.

There is also a battery usage indicator displayed. This indicator represents the total cumulative time that the current main battery pack has been in use. If the main battery is replaced with a new battery pack, the indicator will reset to 0:00. Each battery is uniquely identified with a serial number that the Dolphin terminal uses to track cumulative time. Also, if the terminal is placed in a HomeBase and is running on external power, the indicator will cease counting. When the terminal is removed from the HomeBase, the timer will resume.

To open the Power control panel:

### **Touchscreen-equipped terminals:**

1. Tap the Start button, tap Settings, and then tap Power. If the power plug icon is on the task bar, double-tap it.
2. Tap the Battery or Power Off tab.
3. Select your preferences. For more information, read the following paragraphs, or tap the Help ? button in the upper right corner of the screen.
4. Tap OK to save the changes and exit or tap the Close (X) button in the upper right corner to exit without saving the changes.

### **Non-touch screen terminals:**

1. Use the cursor keys to navigate to the last program icon on the desktop.
2. Press the Tab and then the Enter key to open the Start menu.
3. Use the cursor keys to navigate to the Settings menu and then press Enter.
4. Press Enter again to select the Control Panel.

- 
5. Use the Cursor keys to navigate to Power and then press Enter to open Power Properties.
  6. Use the Cursor and Tab keys to navigate between the Battery and Power Off tabs and to select your preferences.
  7. Press Enter to return to the Control Panel.
  8. Press ALT to open the File menu and use the Cursor key to navigate to Close.
  9. Press Enter to close the Control Panel.

### ***Servicing the Battery Pack***

For maximum battery life, you must service, or deep cycle, the battery twice before initial use. It is also recommended that you service the battery once per month. To deep cycle, insert the battery into the auxiliary well of the Dolphin IntelliBase+ charging/communication cradle, Dolphin QuadCharger or use the Battery Conditioning Utility. See Chapter 6 for more information on using the IntelliBase+ and Chapter 7 for information on using the QuadCharger.

#### **Using the Battery Conditioning Utility**

The Battery Conditioning Utility is used to condition or deep cycle a battery in the Dolphin 7400/7450 terminal. The discharge/charge cycle minimizes battery memory effects and ensures the battery data is correct. A complete discharge/charge cycle may take up to 15 hours for a fully charged battery. The actual cycle time will vary depending on the battery state when the cycle was initiated.

Follow these instructions to use the Battery Conditioning Utility to deep cycle the battery before initial use:

1. Put the battery pack in the Dolphin terminal.
2. Connect the Dolphin 7400/7450 terminal to external power or place the terminal in the HomeBase or IntelliBase. After starting the Battery Conditioning Utility, the Dolphin will beep and then indicate an error if the terminal is not on AC power.
3. Select **Start>Programs>HHP>Battery Conditioning** to start the Battery Conditioning Utility.
4. Touch the 'Start' button (or the 'S' key on non-touchscreen terminals) to start the battery conditioning process. The terminal will beep and the process will begin in approximately 60 seconds.
5. Touch the 'Abort' button (or the 'A' key on non-touchscreen terminals). The terminal will beep and the battery conditioning process will be aborted.

---

## ***Charging the Battery Pack***

You can charge the Dolphin's main battery pack with one of the following methods:

- Place the battery pack in the Dolphin 7400/7450 terminal and then place the terminal in the terminal well of a charging/communication cradle.
- Place the battery pack in the Dolphin Quad Battery Charger.
- Place the battery back in the Auxiliary Battery Well of the IntelliBase+.

## ***Storing Batteries***

To maintain top performance from batteries, follow the guidelines below when storing them:

Avoid storing batteries outside the specified range of -4 to 104° F (-20 to 40°C) or in extremely high humidity.

For prolonged storage, do not keep batteries stored in a charger that is connected to a power source.

During long-term storage, battery deactivation may tend to occur, which may cause charging to stop early during recharging after storage. This issue can be handled by charging and discharging the battery several times. Also, the first charging after prolonged storage may yield a lower than normal capacity. While this will vary depending on the storage conditions, charging and discharging the battery several times will almost completely restore capacity.



## Using the Dolphin 7400/7450

### *Entering Data*

Data can be entered into the Dolphin 7400/7450 through a variety of ways, including the optional touchscreen, keyboard, image engine, laser scanner, via radio or the optional modem (7400 only).

#### *Via the Touch screen Input*

If so equipped, you can use the Dolphin 7400/7450 terminal's touch screen to operate the terminal and enter data.

HHP recommends using screen protectors for Dolphin 7400/7450 terminals equipped with a touch screen display; especially for those terminals used for applications that require high-volume interfacing with the touch display. Screen protectors will help prevent damage to the touch panel display and are easily installed over the display. Screen protectors can be purchased at any major computer retail store.

To enter data, use a stylus to select menu options, functions, etc.

*Note:* For touch screen input, only use a stylus or your finger. Use of other objects, such as paper clips, pencils, or ink pens can damage the touch screen and will void the warranty.

#### *Via the Keyboard*

Data can be entered into the Dolphin 7400/7450 terminal via the keyboard. The Dolphin 7400 has three keyboard options: 43-key alpha/numeric, 35-key numeric/alpha, and 56-key full alpha/numeric.

To enter data, press the appropriate key and the corresponding number or letter appears on the screen.

See Appendix A for a list of keyboard shortcuts for navigating the keyboard.

A mouse utility is also available to help with navigating around the Dolphin 7400/7450 terminal screen.\*

\*Exit the mouse utility prior to adjusting the contrast.

### *Using the Image Reader*

Dolphin 7400/7450 terminals equipped an image reader can read 1D and 2D bar codes, OCR characters and can capture images, such as signatures and gray scale pictures. The imager features either a red or green aiming beam that is used to aim the image reader against the bar code or item being read.

The terminal supports two types of image decoding for use in various bar code reading and imaging applications: ALD (Advanced Linear Decoding) for fast reading of linear 1D and 2D bar codes, and full area imaging for omni-directional reading of linear and non-linear 1D and 2D bar codes, OCR, signature capture, and picture taking.

The decoding method used in a particular scanning or image capture application is determined by the application developer and cannot be changed by the end user. The imaging capabilities of both decode methods help simplify terminal operation and enhance data capture productivity.

When reading linear 1D and 2D bar codes using ALD, the imager's aiming beam should be centered horizontally across the bar code to achieve a positive read.

When reading all bar code types using full area imaging, the aiming beam should be centered horizontally across the bar code to achieve the best read, though a positive read can be obtained from most any position.

---

## Reading A Bar code

1. Press the **ON/SCAN** button on the 7400 or the **Scan Trigger** on the 7450 to project the scanner's bright red or green aiming beam. The aiming beam should be oriented in line with the bar code to achieve the quickest read. A range of 4-10 inches (10-25 cm) is recommended.
2. Center the aiming beam over the bar code. The red SCAN LED illuminates when the user presses the ON/KEY key, and the green DECODE LED illuminates when a bar code is successfully decoded and the terminal beeps.



Linear bar code



2D Matrix symbol



---

The aiming beam is smaller when the terminal is held closer to the code and larger when it is farther from the code. Symbologies with smaller bars or elements (mil size) should be read closer to the unit. Symbologies with larger bars or elements (mil size) should be read farther from the unit.

## *Capturing Images*

The image-capture process is an intuitive, split-second operation for experienced users. By following the basic guidelines, new users can easily develop their own technique and, with practice, quickly learn to adapt it to different circumstances. Basic steps for acquiring images using the Dolphin 7400/7450 terminal include:

1. To aim, point the display end of the 7400 horizontally at a 45° angle approximately 2 to 9 inches (5 to 20 cm) away from the target. You may have to adjust the angle at which you hold the Dolphin if there is glare on the screen.
2. Press the **ON/SCAN** button to take an image. Use the live video image on the terminal screen as a guide for positioning and aiming the terminal at the target. You may find it helpful to start by moving the terminal further away and then in closer to the target. The active screen image will have a slightly degraded appearance compared to the captured image. This is normal.
3. Release the **ON/SCAN** button to capture the image when the desired image is displayed on the terminal screen. Hold the Dolphin terminal as still as possible when capturing the image.

Basic steps for acquiring images using the Dolphin 7450 terminal are:

1. Point the display end of the 7450 directly at the target.
2. Pull the **Scan Trigger** to take the image. Use the live video image on the terminal screen as a guide for positioning and aiming the terminal at the target. You may find it helpful to start by moving the terminal further away and then in closer to the target. The active screen image will have a slightly degraded appearance compared to the captured image. This is normal.
3. Release the **Scan Trigger** to capture the image when the desired image is displayed on the terminal screen. Hold the Dolphin terminal as still as possible when capturing the image.

The image quality and related file size are determined by the data compression method used by your software application. For highest quality, take grayscale images. When saved, the image will be saved in JPEG file format. The size of the file depends on the information content of the image and will be approximately 4-8 K.

## *Communication*

### *Communication Media*

#### **Via the RS-232 Port**

The industry-standard RS-232 port supplies 5 volts of power and allows the user to connect external devices such as scanners and printers, to the Dolphin 7400 and 7450 terminals.

#### **Via the IrDA Port**

The IrDA port allows the Dolphin 7400/7450 to send data via pulses of light to and from other IrDA-compliant devices, such as printers and PCs.

#### **Via the Radio**

The Dolphin 7400/7450 RF may be equipped with a 2.4 GHz 802.11b-compliant direct sequence or frequency hopping spread spectrum local area network (LAN) radio.

#### **Via the Modem**

The Dolphin 7400 may be equipped with a low power, high speed, V.90 56K FAX/modem to allow communications via an analog phone line.

**CAUTION: Only connect the modem to an analog phone line. Connecting to a digital PBX phone line could result in damage to the modem.**

---

## Software Communication Programs

### Microsoft® ActiveSync®

In the Dolphin 7400/7450 development environment, Microsoft® ActiveSync® is a tool for developers. It allows CE devices like the 7400/7450 to connect to and exchange data with a desktop computer.

### RAS

Short for *Remote Access Services*, a feature built into Windows NT® that enables users to log into an NT-based LAN using a modem, X.25 connection or WAN link. RAS is fully supported and allows the use of PPP or SLIP connections for network connectivity.

## Using the Keyboard

### Using the Special Keys

The Dolphin 7400 and 7450 keyboards have special keys and key combinations that you use to type characters or perform functions. See the chart in **Appendix A** for key combinations for keyboard functions and special characters that use these keys.



Dolphin 7400/7450 43-Key Front View





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## *Using the Cursor Keys*

Use the cursor keys to navigate around on an application screen. The use of these keys can vary depending on the application.

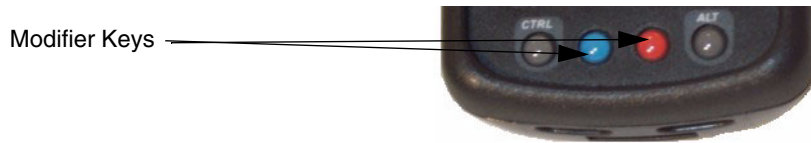


Cursor Keys

<b>To Use This Cursor Key</b>	<b>Press</b>	<b>Description</b>
Arrow up		Moves cursor up one row or line.
Arrow down		Moves cursor down one row or line.
Arrow right		Moves cursor one character to the right.
Arrow left		Moves cursor one character to the left.

---

## Using the Modifier Keys



Modifier Keys

All three versions of the Dolphin 7400/7450 keyboard feature the standard PC keyboard modifier keys, **Alt**, **Ctrl** and **Shift**. For single-handed operation, the **Shift** key only modifies the next key pressed; it must be pressed and released before each key you wish to modify. Functions of the **Alt** and **Ctrl** keys are dependent on the software application in use.

There are two additional modifier keys located on the bottom row of the keyboard. Use these keys in combination with other keys to type the corresponding color-coded characters and functions. The Red and Blue keys only modify the next key pressed; these keys must be pressed and released before each key you wish to modify to the Blue or Red case. See the chart in **Appendix A** for key combinations for keyboard functions and special characters that use these keys.

## Other Special Keys

### ON/SCAN Key

The ON/SCAN key “wakes” the terminal from sleep mode. Its position also allows convenient one-handed image-taking and/or bar code scanning. On the 7450 terminal, the ON/SCAN key operates as an On or system wakeup control -- scanning is activated with the handle trigger.

### Shift (SFT)

The Shift key toggles the keyboard from upper case alphabet mode to lower case alphabet mode and back. Caps Lock may also be toggled by pressing the red modifier key followed by the Shift key or by double-tapping the Shift key. When Caps Lock is toggled on, the Shift key makes characters lower case; when it is toggled off, the Shift key makes keys upper case.

### Enter (ENT)

The Enter key confirms data entry.

### Escape (ESC)

The Escape key performs a cancel action.

### Tab

The Tab key moves the cursor to the next tab stop or the next control on a form.

### Light

The Light key toggles the LCD and keyboard backlights on and off.

### Number Lock (NUM)

This key is included only on the 43-key keyboard option which defaults to alphabetic mode. The Number Lock key toggles between the alphabetic and numeric modes.

### Alpha Lock (ALPHA)

This key is included only on the 35-key keyboard option which defaults to numeric mode. The Alpha key toggles between the numeric and alphabetic modes.

### Backspace (BKSP)

This key appears on both the 35 and 56-keyboard options. The Backspace key moves the cursor back one space for each time the key is pressed. Backspace is a shifted function on the 43-key keyboard version. To delete a single character, press Red key + SP. To delete multiple characters, press Red key + SP and hold down the SP key.

### Delete (DEL)

This key appears on both the 35 and 56-keyboard options. The Delete key deletes one character for each time the key is pressed. Delete is a shifted function on the 43-key keyboard version.

---

## Key Combinations

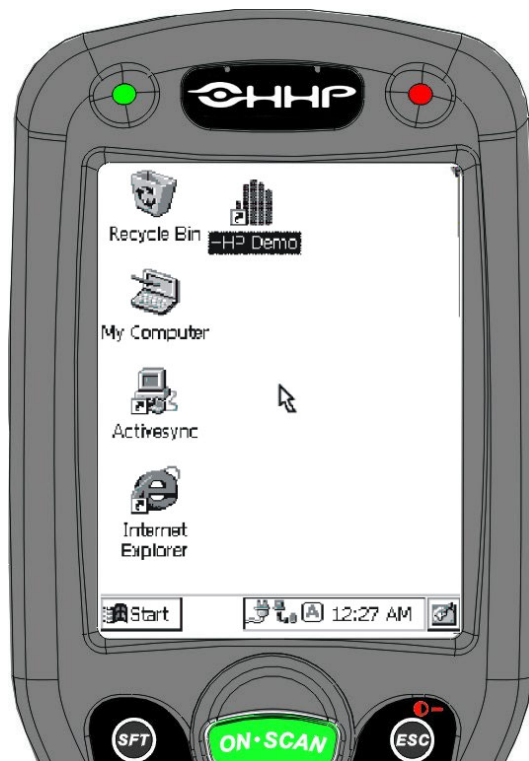
There are some keyboard functions and special characters not defined on the Dolphin 7400 and 7450 keyboards. See the charts in **Appendix A** for the key combinations used to access these functions and special characters on your terminal.

## Navigating the Keyboard

The Dolphin 7400/7450 terminals have a mouse utility to simplify navigating around the screen, especially for non-touchscreen equipped terminals.\*

\*Exit the mouse utility prior to adjusting the contrast.

To activate the mouse utility at any time in any window, double-tap the blue modifier key and the mouse pointer will appear in the middle of the screen as shown in the screen shot below. To deactivate the mouse, double-tap the blue modifier key again and the mouse pointer will disappear.



Use the cursor keys to navigate around the screen. For a left mouse click, press either one of the ENT keys. Use a left mouse click to select an item or launch a program. For a right mouse click, use the TAB key. When you use a right mouse click, a menu of items pops up and tells you what actions you can perform, and shows you shortcuts. To open files or applications with a double click, tap the ENT key twice in rapid succession.

In mouse mode, you can also scroll the active window for dialog boxes that are not formatted for the 1/4 VGA display. Move the cursor to one of the four screen edges and continue to hold down the arrow key to initiate the scrolling feature.

To adjust the double-click speed for the mouse utility, go to Control Panel>Settings>Stylus. Follow the directions on the Double-Tap tab to adjust the settings. **Note: The Double-Tap setting for the stylus also applies to the mouse.**

---

## Using the Modem

If your Dolphin 7400 is equipped with the optional integrated modem, you can allow communications via an **analog** phone line for dial-up applications. A phone jack is built into the back of the Dolphin 7400. The optional integrated modem is not available on the Dolphin 7450 terminal.

**CAUTION: Only connect the modem to an analog phone line. Connecting to a digital PBX phone line could result in damage to the modem.**



Phone Jack on rear of Dolphin 7400

To communicate via the modem, remove the rubber plug from the phone jack and connect the analog phone line. **Note: The rubber plug should be inserted in the phone jack when it is not in use to protect the integrity of the connector.**

If you have not already configured the modem, refer to **Configuring the Modem** in Chapter 2.

To make a connection:

1. From the Control Panel, select Start>Programs>Communication>Remote Networking.
2. Enter your User Name and Password.
3. Touch Dial Properties and select Tone Dialing. **Note: Check Dialing Patterns and edit, if necessary, i.e., if 9 or the area code must be dialed with local calls.**
4. Touch Connect.



## ***Dolphin 7400/7450 RF Terminal***

The **Dolphin® 7400 and 7450 RF** terminals integrate the basic functionality of the Batch terminal with a radio frequency interface that allows the terminal to communicate with a host computer via a wireless local area network (WLAN).

Dolphin 7400/7450 terminals have one Type II PCMCIA card slot to allow for an interface with either the Cisco® 2.4 GHz 802.11b DSSS WLAN radio or Symbol® Technologies Spectrum24 FHSS 2Mb WLAN radio.

The Cisco® radio uses direct sequence spread spectrum (DSSS) technology, which spreads its signal continuously over a wide frequency band, and provides an Ethernet-like data rate of up to 11 megabits per second.

The security of wireless networks is greatly enhanced with the use of LEAP (Dynamic WEP), an industry-leading, centralized security solution developed by Cisco®. LEAP combines several innovations including dynamic, per user, per-session WEP and integrated network logon to promote secure hassle-free enterprise deployment.

The radio may also provide up to 128-bit Wired Equivalent Privacy (WEP) encryption. WEP is used to encrypt and decrypt data signals transmitted between Wireless LAN (WLAN) devices. The optional WEP security mechanism is available with 128-bit or 40-bit encryption.

Dolphin 7400/7450 RF is interoperable with other 802.11b WiFi®-compliant products such as printers and PCs via PC-card adapters.

Refer to Chapters 1 and 2 in this manual for more on basic operation of the Dolphin terminal.

---

## *Configuring The Dolphin 7400/7450 RF Terminal*

When you cold-boot the Dolphin 7400/7450 RF terminal, the red LED comes on and the green LED blinks, and after approximately 3 seconds, the welcome screen shown below will appear.



Dolphin Welcome Screen

Press <Enter> and you will be prompted to calibrate the screen and set the time and date. Refer to the section on Calibrating the Screen, Setting the Date/Time in Chapter 2 for additional information. After the date and time are set, the Dolphin demos and Cisco® radio drivers self-install and the main menu for the HHP demos displays.

### *Client Utilities for the Cisco® DSSS 802.11b Radio*

The following utilities are available for configuring the Cisco 802.11b radio:

**Client Utility (ACU)** - Configures the radio for use in a wireless network

**Client Encryption Manager (CEM)** - Configures a Wired Equivalent Privacy (WEP) key for the radio

**Cisco Link Status (CLS)** - Enables you to view the current status of the client adapter

**Client Statistics Utility (CSU)** - Enables you to view statistics that indicate how data is being received and transmitted by the client adapter

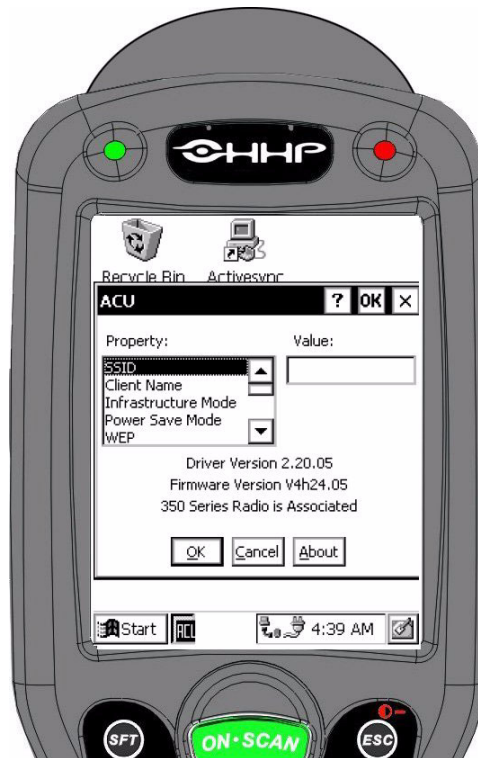
**Wireless Login Module (WLM)** - Provides login interface to Radius server if using LEAP

This document covers the basics of the Client Utility (ACU). For more detailed information on these and the other utilities, please refer to the document entitled "Using the Client Utilities for Windows CE" included on the Dolphin Documentation CD.

---

## Configuring the Cisco® DSSS WLAN Radio

The Aironet Client Utility (ACU) enables you to change the configuration parameters of the Cisco DSSS WLAN radio. Exit the HHP demo screen. Go to **Start>Programs>Cisco>Client Utility**. Double-tap the **Client Utility (ACU)** icon and the screen shown below displays.



Aironet Client Utility Screen

To configure the radio card:

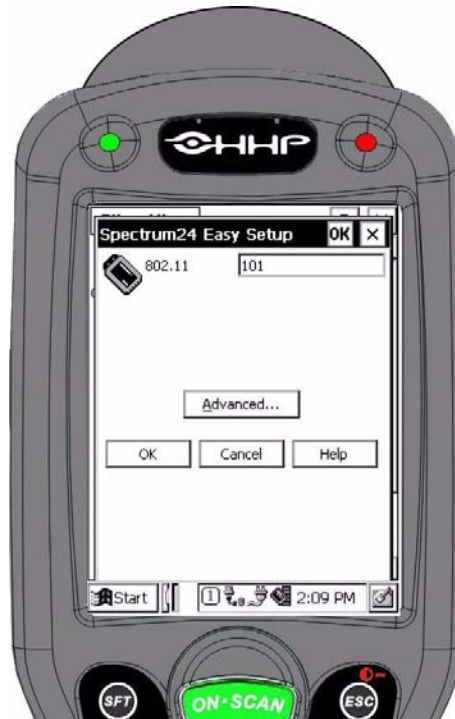
1. Enter the SSID (wireless LAN identifier) for the network. If you do not know the SSID, contact your system administrator.
2. Enter other radio specific information.
3. Click **OK** to save any changes you have made and to exit utility.

For more information the radio settings, go to **Start>Programs>Cisco>Cisco Setup** or see the document entitled “Using the Client Utilities for Windows CE” included on the HHP Dolphin Documentation CD.

---

## Configuring the Symbol® Spectrum24® FHSS WLAN Radio

Exit the HHP demo screen to continue with configuring the radio card. Go to **Start>Settings>Control Panel**. Double-tap the **Spectrum24® FH Settings** icon and the Spectrum24 Easy Setup screen shown below displays.



Spectrum24 Easy Setup

To configure the radio card:

1. Enter the ESSID (wireless LAN identifier) for the network. Note: The 101 value is the factory default. If you do not know the ESSID, contact your system administrator.
2. Click **Advanced** to customize Mobile Unit, MicroAP, Encryption, and WLAN Adapter options.
3. Click **OK** to return to the previous menu.
4. Click **OK** to exit the Spectrum24 Easy Setup Utility.

For more information on specific radio settings, click on **Help** to access the on-line help file or see the Spectrum24 User's Guide included on the HHP Dolphin Documentation CD.

## Customizing the ActiveSync Remote Icon

The following section can be added to the /IPSM/AutoRun.ini file:

```
[Spectrum24]
```

```
ActivesyncRemote=0
```

The ActivesyncRemote flag will suppress the ActiveSync Remote desktop icon when set to zero. A cold boot is required after modifying AutoRun.ini.

---

## *Host Connectivity*

HHP offers several host connectivity options for Dolphin 7400/7450 RF wireless LAN solutions. Direct Connect TN Client software is a thick-client solution that connects Dolphin 7400 RF computers directly to host applications via TN3270, TN5250 or TNVT terminal emulation using industry-standard TCP/IP protocol. Another option is a three-tier client server solution, or thin-client implementation, for 3270, 5250 and VT100/220 terminal emulation that uses a Universal Gateway. The Gateway establishes communication to a host such as an AS400 and maintains communication to both the Dolphin RF terminal and the host.

See Chapter 10 of the PowerNet Twin Client Reference Manual for more on the overlays for the Dolphin 7400 and 7450 terminals.



## *Dolphin Charging/Communication Cradles*

### *Hub of the System*

As the hub of your Dolphin system, Dolphin Charging/Communication cradles perform three important functions – power conditioning, communications and storage. Four versions of the charging/communications cradle are available:

- **HomeBase** for communicating with PC-based equipment using a half duplex serial mode
- **IntelliBase** for communicating with devices such as printers and modems without integrated IrDA protocol software
- **IntelliBase+** for communicating with devices without integrated IrDA protocol software and charging and conditioning a spare battery
- **USB HomeBase** for communicating directly with a USB-compatible host computer

### *Power Conditioning*

Dolphin charging/communication cradles provide power to the intelligent battery charging system incorporated into Dolphin terminals.

The IntelliBase+ has an auxiliary battery well, located on the back of the cradle, allowing users to charge and condition a spare battery.

### *Ir/IrDA Optical Communications*

The infrared, or Ir communications port, on the HomeBase, IntelliBase, and IntelliBase+ connects with the IrDA port on the Dolphin terminal. With no pins or contacts to break, Ir will work reliably for years. Reliable data communications at speeds of up to 115k baud can be transmitted by the HomeBase, IntelliBase and IntelliBase+; data transmission rates with the USB HomeBase up to 4Mbps are possible but, at this time, are limited to 115 kbps as the Dolphin 7400 does not currently support 4 Mbps data transfer.

The IntelliBase and IntelliBase+ infrared connection to the terminal uses IrDA-compliant hardware and software for a reliable connection. Communications between the HomeBase and other devices occur at half duplex serial mode. Half duplex refers to the transmission of data in just one direction at a time.

The USB HomeBase enables direct communication with USB-compatible host computers at rates of up to 115 kbps. The USB HomeBase also is IrDA 1.3 compliant.

These peripherals cannot be “daisy-chained” but can be networked together using a serial or USB hub.

### *Convenient Storage*

Dolphin charging/communication peripherals provide a safe and convenient storage receptacle for your Dolphin terminal.

---

## *Dolphin Charging/Communication Cradle Parts & Functions*

### *Front Panel*

#### *HomeBase/IntelliBase/USB HomeBase*



Front View of HomeBase/IntelliBase/USB HomeBase

**Dolphin Terminal Well** Place the Dolphin in this well to communicate with a host device and to charge the Dolphin's battery.

**LEDs** There are two LEDs on the front panel of the HomeBase/IntelliBase/USB HomeBase.

1. **Dock LED** Turns solid green when the Dolphin Terminal is properly seated into the Dolphin HomeBase.
2. **COMM LED** Indicates the status of data transfer between the Host Device and the Dolphin Terminal as described below:

<b>Comm LED</b>	<b>Description</b>
<b>Red LED</b>	Data is being sent from the Host Device to the Dolphin HomeBase.
<b>Green LED</b>	Data is being sent from the Dolphin HomeBase to the Host Device.
<b>Orange LED</b>	Data is being sent at high data rates.



---

## IntelliBase+



Front View of IntelliBase+

**Dolphin Terminal Well** Place the Dolphin in this well to communicate with a host device and to charge the Dolphin's battery.

**LEDs** There are three LEDs on the front panel of the IntelliBase+.

1. **Dock LED** Turns solid green when the Dolphin Terminal is properly seated into the Dolphin HomeBase.
2. **AUX Battery** Indicates charging/calibration status of battery as described below:

AUX Battery LED	Description
Orange LED	Solid indicates that battery pack is being charged. Flashing indicates battery is being conditioned.
Red LED	Indicates faulty battery.
Green LED	Indicates battery charged and ready for use

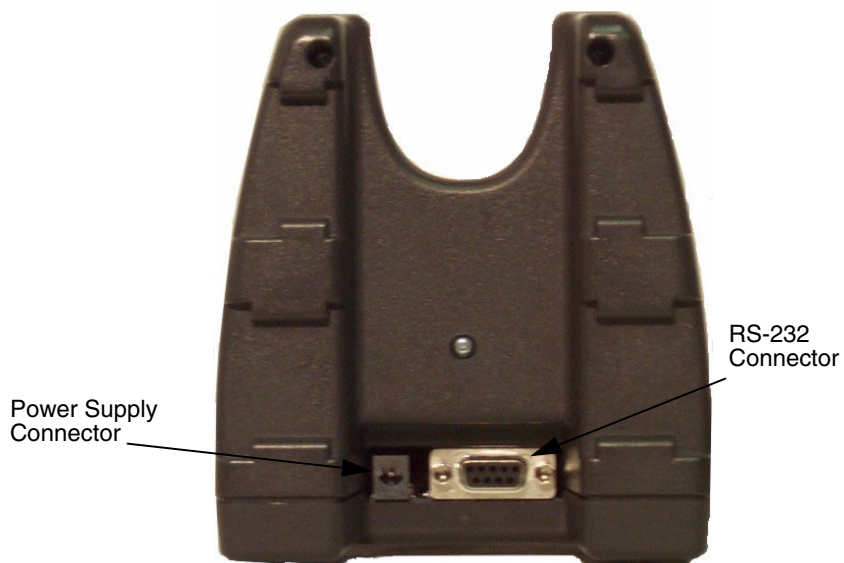
---

3. **COMM LED** Indicates the status of data transfer between the Host Device and the Dolphin Terminal as described below:

<b>Comm LED</b>	<b>Description</b>
<b>Red LED</b>	Data is being sent from the Host Device to IntelliBase+.
<b>Green LED</b>	Data is being sent from the IntelliBase+ to the Host Device.
<b>Orange LED</b>	Data is being sent at high data rates.

## ***Back Panel***

### ***HomeBase/IntelliBase***



Rear View of Dolphin HomeBase/IntelliBase

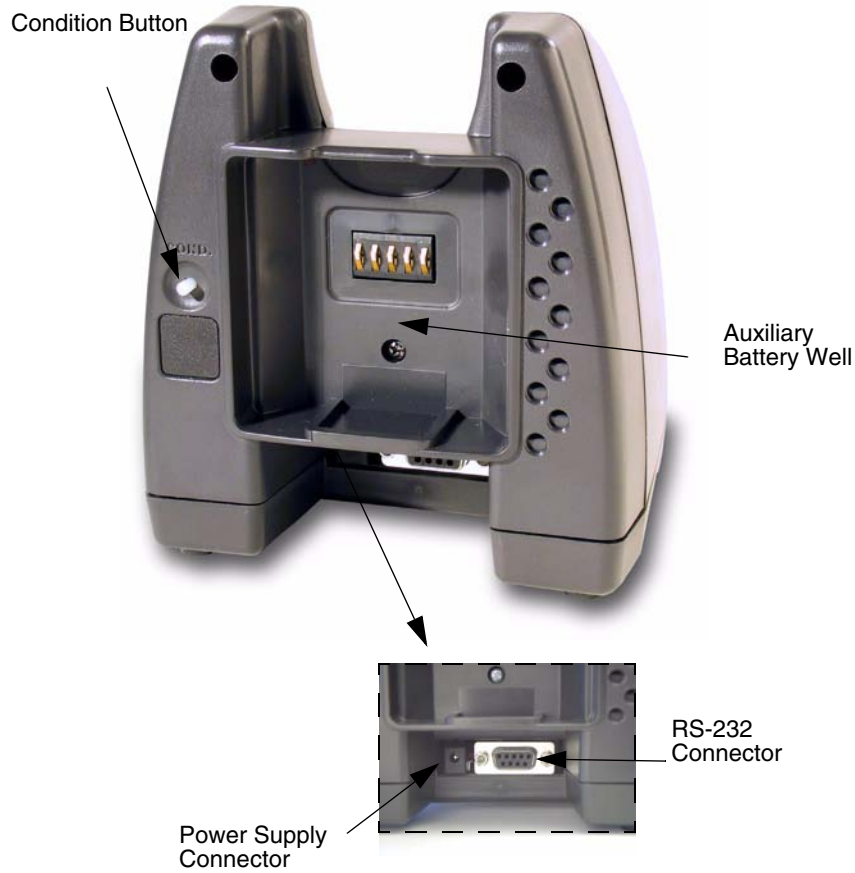
There is a 5V DC power supply connector and an RS-232 connector:

**Power supply connector** Use this connector to attach a power supply to the HomeBase. The power supply provides 5V DC input for communications and battery charging.

**RS-232 Communications Port** Use a standard serial cable to connect this port to a host RS-232 device.

---

## *IntelliBase+*



Rear View of Dolphin IntelliBase+

**Power supply connector** Use this connector to attach a power supply to the HomeBase. The power supply provides 5V DC input for communications and battery charging.

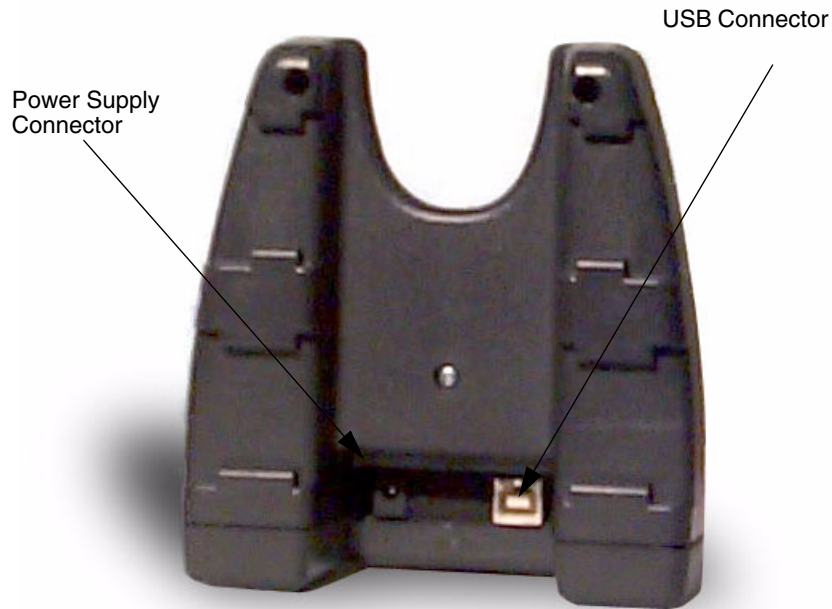
**RS-232 Communications Port** Use a standard serial cable to connect this port to a host RS-232 device.

**Auxiliary Battery Well** Insert a battery into the well to charge or condition and calibrate a battery pack.

**Condition Button** Press and release the button to service the battery in the auxiliary battery well.

---

## *USB HomeBase*



Rear View of Dolphin USB HomeBase

There is a 5V DC power supply connector and a USB connector:

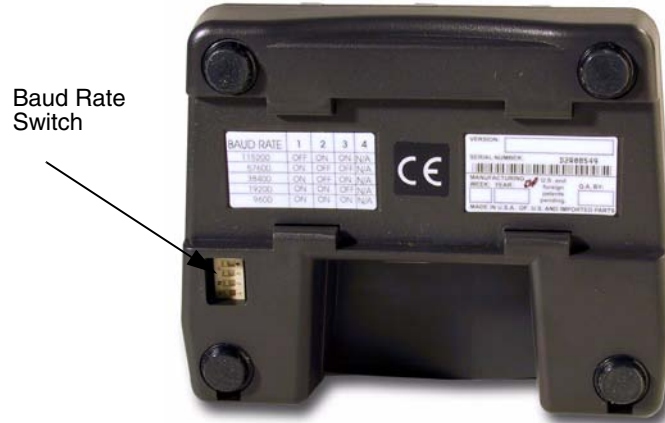
**Power supply connector** Use this connector to attach a power supply to the HomeBase. The power supply provides 5V DC input for communications and battery charging.

**USB Communications Port** Use a USB full-speed detachable cable to connect this downstream device port to an upstream USB Host or Hub. The USB HomeBase is USB 1.3 compliant.

### ***Bottom Panel of HomeBase/IntelliBase/IntelliBase+***

A Baud Rate switch used to select the communication baud rate is located on the bottom of the HomeBase, IntelliBase and IntelliBase+. The Baud Rate Switch on the HomeBase is a three-position switch; four-position on the IntelliBase and IntelliBase+. Switch position and the corresponding baud rates are shown in the charts below.

The USB HomeBase does not require a baud rate switch.



Bottom View of HomeBase/IntelliBase/IntelliBase+

Baud Rate	Switch 1	Switch 2	Switch 3
115200	OFF	OFF	OFF
57600	ON	OFF	OFF
38400	OFF	OFF	ON
19200	OFF	ON	OFF
9600	ON	ON	OFF
4800	ON	OFF	ON
2400	OFF	ON	ON

Table 2: HomeBase Switch Settings

Baud Rate	Switch 1	Switch 2	Switch 3	Switch 4
115200	OFF	ON	ON	N/A
57600	ON	OFF	OFF	N/A
38400	ON	OFF	ON	N/A
19200	ON	ON	OFF	N/A
9600	ON	ON	ON	N/A

Table 3: IntelliBase/IntelliBase+ Switch Settings

---

## *Powering the Dolphin Terminal*

Dolphin charging/communication cradles provide power to the intelligent battery charging system incorporated into Dolphin terminals. This charging method protects the battery from being damaged by overcharging. Therefore, Dolphin terminals may be stored indefinitely in the charging/communication cradles without damage to the terminals, battery packs, or peripherals.

To charge a Dolphin terminal, follow these steps:

1. Insert a battery pack into the Dolphin terminal.
2. Place the terminal, imager/laser engine window up and the LCD visible, in the terminal well of the cradle.
3. Let it glide down into the well until it stops.
4. Once the Dolphin terminal is properly seated, the Dock LED on the front of the cradle will be solid GREEN.

## *Charging Additional Battery Packs in the IntelliBase+*

The auxiliary battery well located on the back of the IntelliBase+ allows users to charge and condition a spare battery. Charging a Dolphin terminal and a spare battery pack can be done simultaneously as the charging slots work independently to control charging and conditioning of the individual batteries. The IntelliBase+ senses when a battery pack is fully charged and automatically switches to trickle charge to maintain the battery at full capacity indefinitely.

To charge a spare battery in the IntelliBase+, insert the end of the battery without the locking tab into the bottom of the auxiliary well opening and snap the battery into place with a hinging motion. Once the battery is inserted, you can use the AUX BATTERY LED to monitor the charging progress.

## *Deep-Cycling Batteries*

For maximum battery life, HHP recommends that you deep-cycle (service) the battery **twice** before initial use and then once a month thereafter.

The IntelliBase+ is the only Dolphin charging/communication cradle with deep cycling capabilities. Since the Dolphin HomeBase, Intellibase, and USB HomeBase **do not** have deep-cycling capabilities, it is recommended that you use the Battery Conditioning Utility software when using those peripherals or use the Dolphin Quad Battery Charger.

To deep-cycle a battery using the IntelliBase+, insert the battery into the auxiliary battery well. Then, press and release the Condition button. The deep-cycling process takes 8-12 hours depending on the battery's capacity or state of charge.

See the Battery Management section in Chapter 3 for more information.

## *Setting Up For Communications*

The HomeBase, IntelliBase, and IntelliBase+ support RS-232 communications through the RS-232 Communications Port located on the back of the device. The HomeBase/IntelliBase translates the RS-232 signals from the host computer into infrared signals to communicate with the Dolphin Terminal.

The HomeBase/IntelliBase RS-232 interface allows the Dolphin terminal to communicate to a personal computer, modem, or any standard RS-232 device using a standard serial cable and communications software.

### **HomeBase**

The HomeBase is designed for users needing a half duplex serial communications connection. Any device capable of using half duplex RS-232 communications can be connected to the HomeBase for communications. To use this mode, set the baud rate switches to the desired communications speed and the Ir-enable switch to on (See Table 2).

### **IntelliBase/IntelliBase+**

The IrDA 1.0 software stack is integrated into the IntelliBase and IntelliBase+ cradles to allow communication between the cradle and devices such as modems or printers that are not IrDA ready or do not communicate with a half duplex serial protocol. This allows any full or half duplex RS-232 device to communicate through the IntelliBase/IntelliBase+ with no IrDA protocol software. See Table 2 for the baud rate switch settings.

---

## *Installing The Charging/Communication Cradle*

To install and use the HomeBase, IntelliBase or IntelliBase+, you need the following equipment:

- HomeBase/IntelliBase/IntelliBase+ with power supply
- Serial cable

Set the Dolphin HomeBase/IntelliBase/IntelliBase+ on a dry, stable surface, such as a desktop near an electrical outlet. Be sure to provide enough workspace with good lighting for the user to view and operate the Dolphin terminal while it is in the HomeBase/IntelliBase.

### **Connecting the Cables**

Connect the HomeBase/IntelliBase/IntelliBase+ to the host computer or other device by plugging an RS-232 serial cable into the RS-232 Communications Port on the rear of the HomeBase. The wiring of your cable depends on whether the other device is set up as a DCE (Data Communications Equipment) or DTE (Data Terminal Equipment) device.

The HomeBase/IntelliBase Communication Port is configured as a DCE device. To communicate with a DTE device such as a computer, use a standard (or straight-through) RS-232 cable. To communicate with a DCE device, use either a null modem adapter in line with a standard RS-232 cable, or a null-modem serial cable.

You can make your own cables by following the pin configuration in the chart below. To do so, you must determine if your host RS-232 device is 9-pin or 25-pin, and whether it is configured as a DCE or DTE device.

HomeBase /Host Port (DCE) Pin / Input Signal	IBM AT DB9 (DTE)	IBM XT DB25 (DTE)	Modem DB25 (DCE)
2 / (RD)	2	3	2
3 / (TD)	3	2	3
5 / (SG)	5	7	7
4 / (DTR)	4	20	6
6 / (DSR)	6	6	20
7 / (RTS)	7	4	5
8 / (CTS)	8	5	4

The HomeBase/IntelliBase/IntelliBase+ **cannot** be daisy-chained.

Connect the power supply to the charging/communication cradle. Plug the AC transformer into the Dolphin HomeBase/IntelliBase/IntelliBase+ 5 Volt DC power supply connector. The AC wall transformer provided can power only one HomeBase/IntelliBase/IntelliBase+. HHP recommends that you leave the Dolphin HomeBase/IntelliBase/IntelliBase+ connected to its power source at all times, so that it is always ready to use.

Set the baud rate switch to the communication mode you are going to use. Refer to Table 2 for HomeBase switch settings or Table 3 for IntelliBase/IntelliBase+ switch settings.

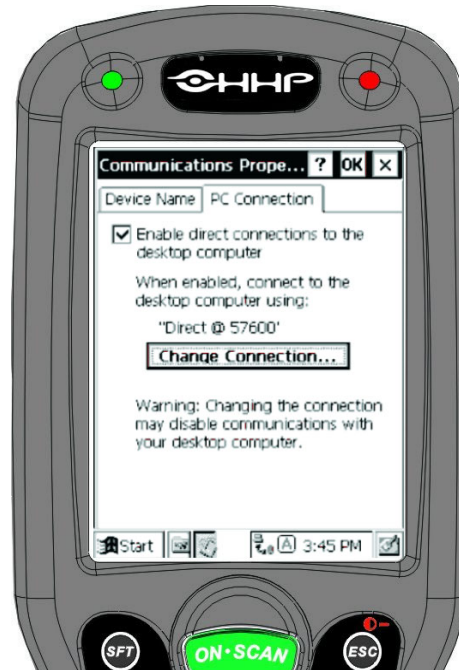
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## Configuring the Dolphin Terminal for Communications

The Dolphin terminal may be configured for communications using the Detectoid Communication Utility as described in Chapter 2 or manually as described below.

To set Communications Properties:

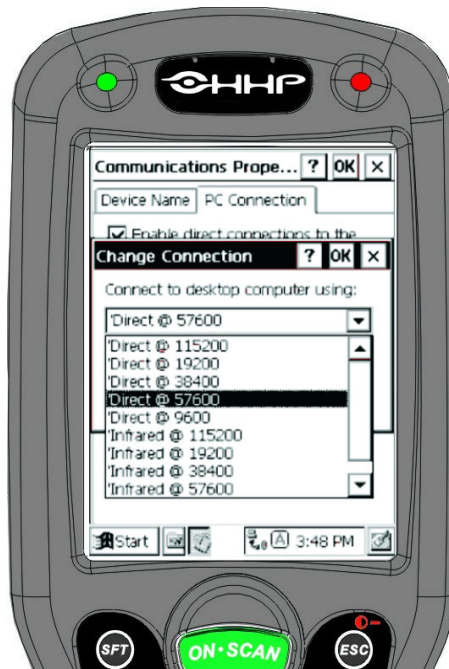
1. Select **Start>Settings>Control Panel>Communications Properties**.
2. Select the **PC Connection** tab.



Communications Properties

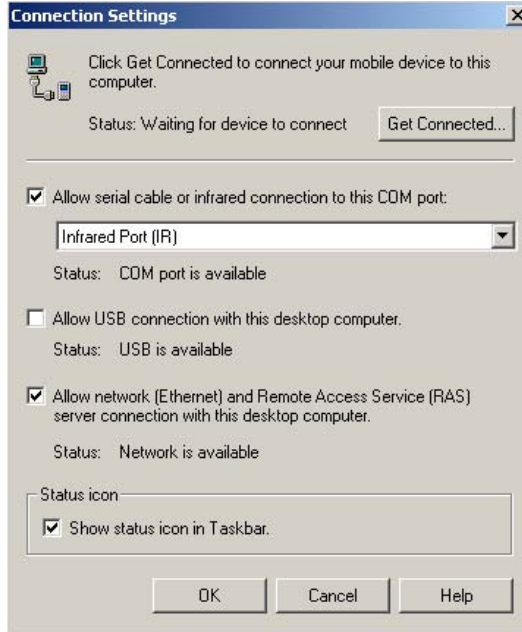
3. Select Change Connection and choose the desired option for connecting to the desktop computer. Choose **Direct** if you are using a serial connection; choose **Infrared** for a HomeBase connection; and **IrDA** for IntelliBase/IntelliBase+ connection or USB HomeBase IrDA connection and click **OK**.
4. Place the Dolphin in the cradle.
5. On the Dolphin 7400/7450 desktop, double-tap on ActiveSync.





Change Connection Screen

6. In the ActiveSync connection settings, add check mark to "Allow serial cable or infrared connection to this COM port" and select "Infrared Port (IR)" for the COM port as shown below.



ActiveSync Connection Settings

To configure the Dolphin 7400/7450 terminal for communications, see the previous section on **Configuring the Dolphin Terminal**.

### *Setting Up For Communications With The USB HomeBase*

To use the USB HomeBase, you need the following equipment:

- USB HomeBase with power supply
- USB Cable
- CD with USB-IrDA drivers
- Windows® 98, Windows® Me or Windows® 2000 computer.

Note: The USB HomeBase does not support Windows NT®

To install the USB HomeBase, follow these steps:

1. Plug in the power supply and connect it to the back of the USB HomeBase.
2. Plug the USB cable into the back of the USB home base.
3. Plug the other end of the USB cable into your PC.

At this point, a dialog box appears on your PC instructing you that the system has detected new hardware and it is searching for the HHP USB-IrDA driver. Unless you have previously installed the USB HomeBase, the OS will be unable to find one and the Found New Hardware Wizard screen shown below will display on your PC's screen.



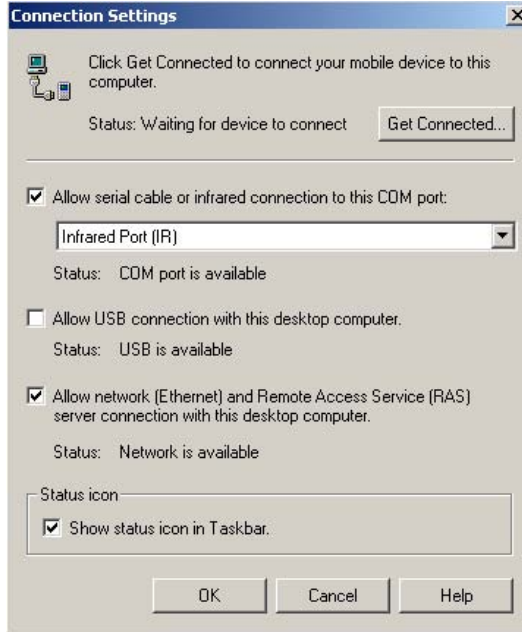
In the "Locate Drive Files" dialog, check the CD-ROM drives check box and insert the driver CD provided into the CD tray on your PC. There are sub-directories in this directory for each type of Windows OS supported. Select stirusb.sys file in the correct sub-directory for your PC:

- w2k - Windows® 2000
- win98 - Windows® 98
- winme - Windows® Me

At this point, the hardware is installed and operating. You may need to reset your PC to complete the installation process. You can verify that the USB driver is functioning by watching the COMM LED on the USB home base. It should be flashing red approximately every three seconds.

Once the USB HomeBase is installed, you can use ActiveSync to connect to a Dolphin 7400. These instructions assume that ActiveSync v3.1 is installed on your PC.

In the ActiveSync connection settings, add check mark to "Allow serial cable or infrared connection to this COM port" and select "Infrared Port (IR)" for the COM port as shown below. Do not check "Allow USB connection with this desktop computer". It has no effect for the USB HomeBase.



ActiveSync Connection Settings

To configure the Dolphin 7400/7450 terminal for communications, see the previous section on **Configuring the Dolphin Terminal**.

## *Communicating with the Dolphin Terminal*

To communicate with the Dolphin and any other devices connected to the Dolphin Charging/Communication cradle:

1. Insert the Dolphin into the terminal well of the HomeBase/IntelliBase/USB HomeBase. If the Dolphin is in sleep mode, it will awaken into active state.
2. The DOCK LED on the cradle will illuminate. If the Dolphin does not turn on, or the LED does not light up, make sure that it is properly seated in the terminal well and that the power supply is properly connected to the cradle and plugged into a functioning AC outlet.
3. Start your application on the Dolphin terminal or the host computer. Data can then begin transmitting between the terminal and the devices connected to the Dolphin cradle.

When data transfer begins, the COMM LED on the cradle will blink red and green. If the HomeBase/IntelliBase/HomeBase will not communicate with the Dolphin, check the port connections to ensure that the cradle is correctly configured.

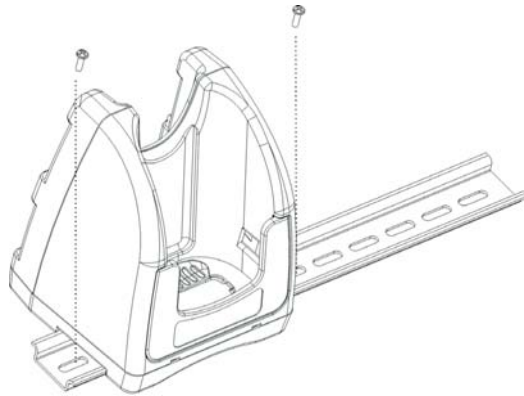
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## ***Mounting the HomeBase/IntelliBase/USB HomeBase***

The HomeBase, IntelliBase, and USB HomeBase may be desk or wall-mounted for convenience and storage. The IntelliBase+ may be desk-mounted as long as room is allowed for accessibility to the auxiliary battery well.

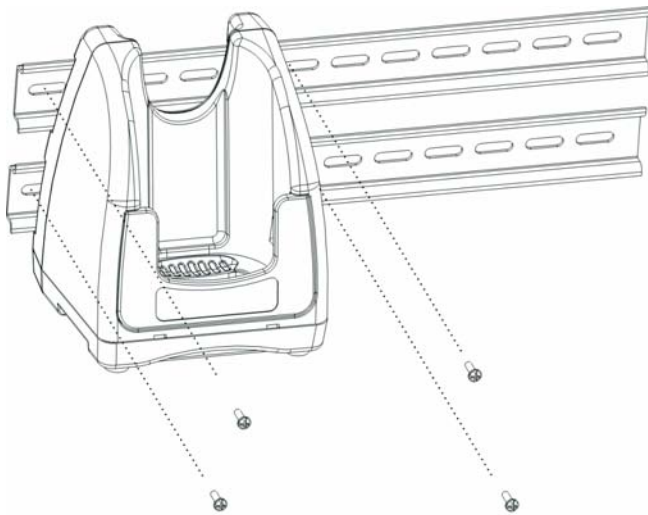
### ***Desk Mounting:***

Dolphin charging/communication cradles have a DIN rail (7.5 X 35 mm) slot on the bottom to allow for secure desk attachment of the unit if desired.



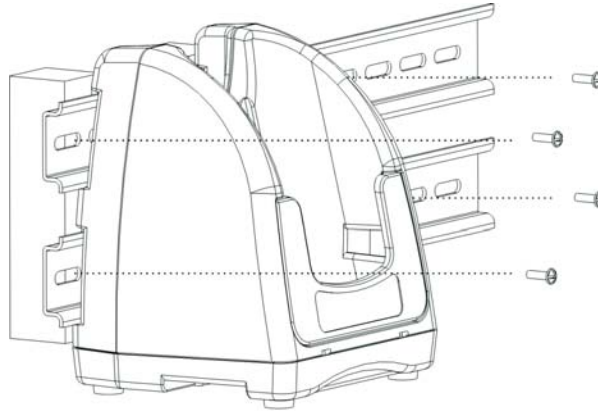
### ***Wall Mounting:***

The HomeBase/IntelliBase/USB HomeBase also has two DIN rail (7.5 X 35mm) slots on the back to allow for secure wall mounting of the unit if desired. **The IntelliBase+ may not be wall-mounted.**

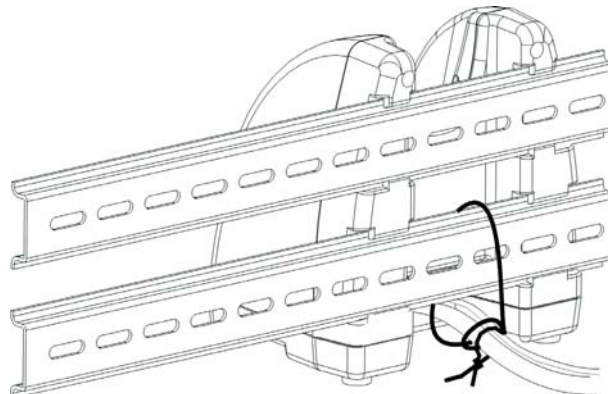


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When using right-angle style RS-232 connector cable, the DIN rails may be mounted directly to the wall. When using standard RS-232 connector cables, it is recommended that the rails be mounted to the wall using a 25mm (1 in.) spacer to allow for appropriate strain relief of the cables.



In either case, **after wall mounting**, it is **recommended** that the cables be secured to the DIN rail through use of a wire tie to prevent damage to the HomeBase/IntelliBase/USB HomeBase unit in case accidental or excessive force is applied to the cables.



SECURE THE PROTRUDING WIRES TO THE DIN RAIL WITH A WIRE TIE OR EQUIVALENT.

# 7

## Dolphin® QuadCharger

The Dolphin® QuadCharger provides intelligent battery management for NiMH (Nickel Metal Hydride) Dolphin 7400/7450 battery packs.

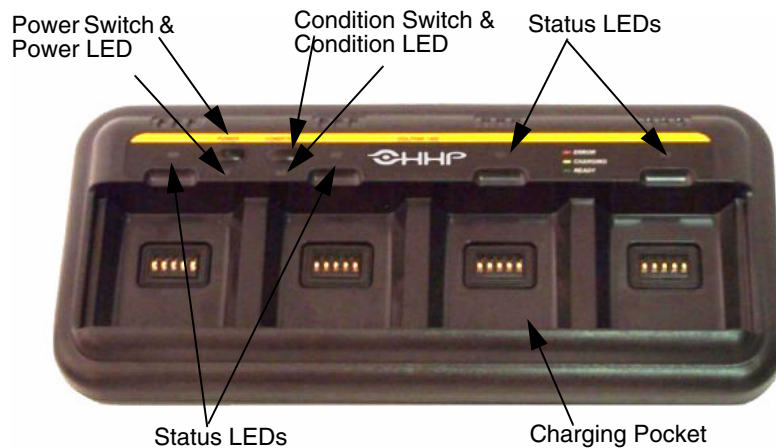
This device fully charges as many as four NiMH batteries in 2.5 hours. Charging slots work independently to control charging and discharging of individual battery packs. The QuadCharger is compatible with all models in the Dolphin® 7400/7450 family of hand held computers.

As battery packs charge, the charging circuitry follows a three-step process that senses changes in temperature and voltage and drops to a trickle charge when the packs are fully charged. This feature allows the user to leave batteries in the charger indefinitely, which maintains the batteries at peak capacity without damage. The charger also resets and calibrates battery pack data to accurately show battery status on the Dolphin display.

The QuadCharger conditions and calibrates batteries for longer, more consistent performance.

### *Dolphin QuadCharger Parts and Function*

#### *Top Panel*



#### **Charging Pocket**

The QuadCharger has four charging pockets for charging and/or conditioning batteries for Dolphin 7400/7450 terminals.

#### **Power Switch**

Press and hold the Power Switch for approximately one second, then release, to turn on the QuadCharger. The Power Switch LED is green when the unit is on. To turn the charger off, press and hold the Power Switch for about two seconds and then release. This feature prevents the unit from being accidentally turned off during use or on when not in use.

#### **Condition Switch**

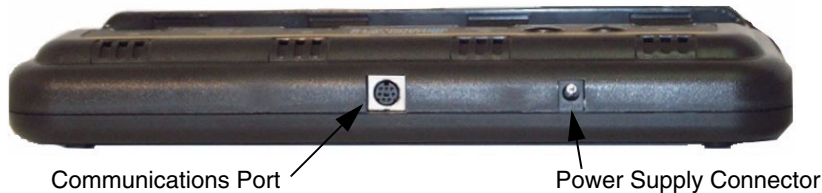
Press the Condition Switch to start a battery conditioning cycle. The orange Condition Switch LED flashes during the conditioning cycle.

#### **Status LEDs**

A Status LED is located above each of the four battery pockets.

---

## *Rear Panel*



Rear Panel of Dolphin 7400/7450 Quad Charger

### **Power Supply Connector**

Use this connector to attach the power supply to the QuadCharger. The universal power supply accepts input voltages between 90-265 volts.

### **Communications Port**

The communications port is for factory use only in programming the QuadCharger.

## *Charging Batteries In The QuadCharger*

Follow these steps to charge batteries in the QuadCharger:

1. Set up the charger for use
2. Supply power
3. Insert batteries

**CAUTION: Do not attempt to recharge any battery pack in the Dolphin 7400/7450 QuadCharger that is not manufactured by HHP especially for this device. To do so will void your warranty and could damage the Dolphin 7400/7450 QuadCharger.**

## *Setting Up The QuadCharger*

The Dolphin QuadCharger should be set up on any dry, stable surface. DIN rail slots on the bottom panel allow the charger to be wall or desktop-mounted for easily adapting the unit to your environment.

The charger must be connected to a power source for any type of operation.

## *Supplying Power To The QuadCharger*

**CAUTION: Using a non-HHP power cord voids your warranty and could result in serious damage to the Dolphin QuadCharger's circuitry.**

Locate the AC power cord that came with the Dolphin QuadCharger. Plug the cord into the power supply connector on the back of the unit and then plug the power cord into a wall socket.

Press and hold the Power Switch for approximately one second, then release, to turn on the Dolphin 7400 QuadCharger. The GREEN power LED will illuminate and the charger will undergo a self-diagnostic test.

## *Inserting and Removing Battery Packs*

To insert a battery pack, place the end of the battery without the locking tab into the bottom of the charging pocket and snap the battery into place with a hinging motion. Once the battery is properly seated, the orange status LED for that particular pocket will illuminate.

For best results, battery packs should be at room temperature before recharging them; temperature has a marked effect on charging. The recommended temperature range is 50° to 95° F (10° to 35° C).



---

The LEDs indicate the charging status of batteries as described in the chart shown on the next page:

Status LED	Description
Green	Charging is complete and battery is ready for service.
Orange	Battery is being charged at a maximum charge rate
Red	Error was encountered during charge cycle

Status of LEDs during Charging Cycle

To remove a battery pack, push the locking tab down and pull the battery out from the charging pocket with a hinging motion.

### ***Servicing The Battery Pack***

To service battery packs, insert batteries into the charging pockets and press the Condition button. The Condition LED will flash during the conditioning cycle. This starts an automatic process in which batteries are completely discharged and then recharged to full capacity in eight hours. The Condition and Calibrate cycle resets and calibrates battery data so that the user gets longer, more consistent performance from the batteries. HHP recommends that battery packs should be serviced, or calibrated, once a month.

Because the Dolphin QuadCharger is accumulating battery pack information during the entire Condition and Calibrate cycle, it is important not to remove the battery until the cycle has been completed and the Condition LED is no longer flashing. Batteries inserted after the “Condition and Calibrate” switch has been depressed will receive a standard charge. The chart below describes the Status LEDs during the Condition and Calibrate cycle:

Status LED	Description
Solid Green	Cycle is complete. Battery remains in trickle charge until removed from the charger.
Flashing Orange	Battery is being conditioned
Solid Red	Error was encountered during charge cycle

Status of LEDs during Condition and Calibrate Cycle

### ***Storing Batteries***

To maintain top performance from batteries, follow the guidelines below when storing them:

Avoid storing batteries outside of the specified temperature range of -4 to 104° F (-20 to 40°C) or in extremely high humidity.

For prolonged storage, do not keep batteries stored in a charger that is connected to a power source.

During long-term storage, battery deactivation may tend to occur which may cause charging to stop early during recharging after storage. This issue can be handled by charging and discharging the battery several times. Also, the first charging after prolonged storage may yield a lower than normal capacity. While this will vary depending on the storage conditions, charging and discharging the battery several times will almost completely restore capacity.

---

## Troubleshooting

If you encounter problems with your Dolphin QuadCharger, refer to chart below for possible solutions. If problems persist, please contact HHP Technical Support.

Problem	Issue
The "CHARGING" LED does not come on when I insert a battery pack into the Dolphin QuadCharger	Check the power connections on the Dolphin QuadCharger. Also check to ensure the POWER switch is ON and the battery pack is properly seated.
The red status LED comes on during charging.	Try to charge the battery in one of the other charging pockets. If the red Status LED comes on again, then the problem is associated with the battery pack. If the red status stays with the charging pocket, the problem is associated with the charging circuitry.
The red status LED remains on without a battery in the charging pocket.	An error occurred during the self-diagnostic test for that particular charging pocket. Call HHP Product Service and request an RMA. See Chapter 9 for additional warranty and return information.

## ***Dolphin Mobile Charging/Communication Cradles***

As the hub of Dolphin mobile data collection systems, Dolphin Mobile Charging/Communication cradles perform three important functions – power conditioning, communications and storage. Two versions of the mobile charging/communication cradles are available:

**Dolphin Mobile IntelliBase™** for use with in-transit data collection applications.

**Dolphin Mobile Base** for use with in-premise warehouse data collection applications.

### ***Power Conditioning***

The charging/ communication cradles provide power to the Dolphin terminal to enable the terminal to charge its battery.

### ***Ir/IrDA Optical Communications***

The infrared, or Ir, communications port on the cradles connect with the IrDA port on the Dolphin terminal. With no pins or contacts to break, Ir will work reliably for years. Reliable data communications at speeds of up to 115k baud can be transmitted by the both versions of the cradle.

The Mobile IntelliBase and Mobile Base infrared connection to the terminal uses IrDA-compliant hardware and software for a standard reliable connection.

### ***Convenient Storage***

The Mobile IntelliBase and Mobile Base are safe, convenient storage receptacles for the Dolphin terminal.

---

## *Mobile IntelliBase and Mobile Base Parts and Functions*

### *Front Panel*

The front panel of the Mobile IntelliBase and the Mobile Base has one slot:



Front Panel of Dolphin Mobile IntelliBase



Front Panel of Dolphin Mobile Base

**Dolphin Terminal Well** Place the Dolphin in the well to communicate with a host device and/or to charge the Dolphin's battery.

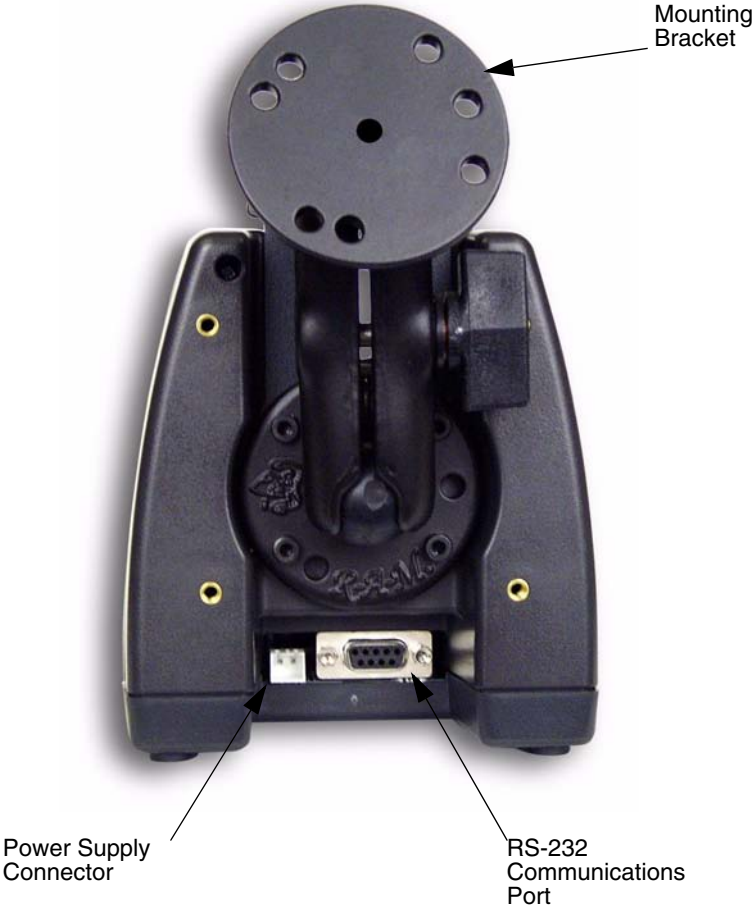
**LEDs** There are two LEDs on the front panels of the Mobile IntelliBase and Mobile Base charging/communication cradles.

1. **Dock LED** Turns solid green when the Dolphin terminal is properly seated into the Dolphin Mobile IntelliBase.
2. **COMM LED** Indicates the status of data transfer between the Host Device and the Dolphin terminal as described below:

Comm LED	Description
<b>Red LED</b>	Data is being sent from the Host Device to the Dolphin Mobile IntelliBase/Mobile Base.
<b>Green LED</b>	Data is being sent from the Dolphin Mobile IntelliBase/Mobile Base to the Host Device.
<b>Orange LED</b>	Data is being sent at high data rates.

---

*Rear Panel*



Rear Panel of Dolphin Mobile IntelliBase



Rear Panel of Dolphin Mobile Base

The power supply connector and RS-232 connector are located on the back panel of the unit:

**Power supply connector** Use this connector to attach a power supply to the charging/communications cradle. The power supply provides power for communications and battery charging.

**RS-232 communications port** Use a standard serial cable to connect this port to a host RS-232 device.

---

## ***Bottom Panel of Mobile IntelliBase/Mobile Base***

A four-position Baud Rate switch, located on the bottom of the Mobile IntelliBase, is used to select the communication baud rate. Switch positions and the corresponding baud rates are shown in the chart below.

Baud Rate Table For Connecting To PCs

Baud Rate	Switch 1	Switch 2	Switch 3	Switch 4
115200	OFF	ON	ON	ON
57600	ON	OFF	OFF	ON
38400	ON	OFF	ON	ON
19200	ON	ON	OFF	ON
9600	ON	ON	ON	ON

Baud Rate Table For Connecting To Modems

Baud Rate	Switch 1	Switch 2	Switch 3	Switch 4
115200	OFF	ON	ON	OFF
57600	ON	OFF	OFF	OFF
38400	ON	OFF	ON	OFF
19200	ON	ON	OFF	OFF
9600	ON	ON	ON	OFF

## ***Powering the Dolphin Terminal***

When seated in the Mobile IntelliBase/Mobile Base, the Dolphin terminal receives the power it needs to charge the battery and to run its internal circuitry.

The Dolphin terminal can be stored indefinitely in the charging/communication without damage to the terminal or the Mobile IntelliBase/Mobile Base. Keep the mobile charging/communications cradle plugged in so that the Dolphin terminal battery pack stays fully charged.

## ***Charging A Dolphin Terminal***

The Mobile IntelliBase/Mobile Base supplies charging power to the Dolphin terminal so that the terminal can monitor the charging of its battery pack. This charging method protects the battery from being damaged by overcharging. Therefore, the Dolphin terminal may be stored indefinitely in the Mobile IntelliBase/Mobile Base without damage to the terminal, the battery pack, or the Mobile IntelliBase/Mobile Base.

To charge a Dolphin terminal, follow these steps:

1. Insert a battery pack into the Dolphin terminal.
2. Place the terminal, imager engine window up and the LCD visible, in the terminal well of the Mobile IntelliBase/Mobile Base.
3. Let it glide down into the well until it stops.
4. Once the Dolphin terminal is properly seated, the Dock LED on the Mobile IntelliBase/Mobile Base will be solid GREEN.

## ***Deep-Cycling Batteries***

For maximum battery life, HHP recommends that you deep-cycle (service) the battery **twice** before initial use and once a month thereafter. Since the Dolphin 7400 Mobile IntelliBase and Mobile Base **do not** have deep-cycling capabilities, it is recommended that you use the Battery Conditioning Utility software, the IntelliBase+ or a Dolphin QuadBattery Charger. See the Battery Management section in Chapter 3 for more information.



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## *Setting Up For Communications with the Mobile IntelliBase/Mobile Base*

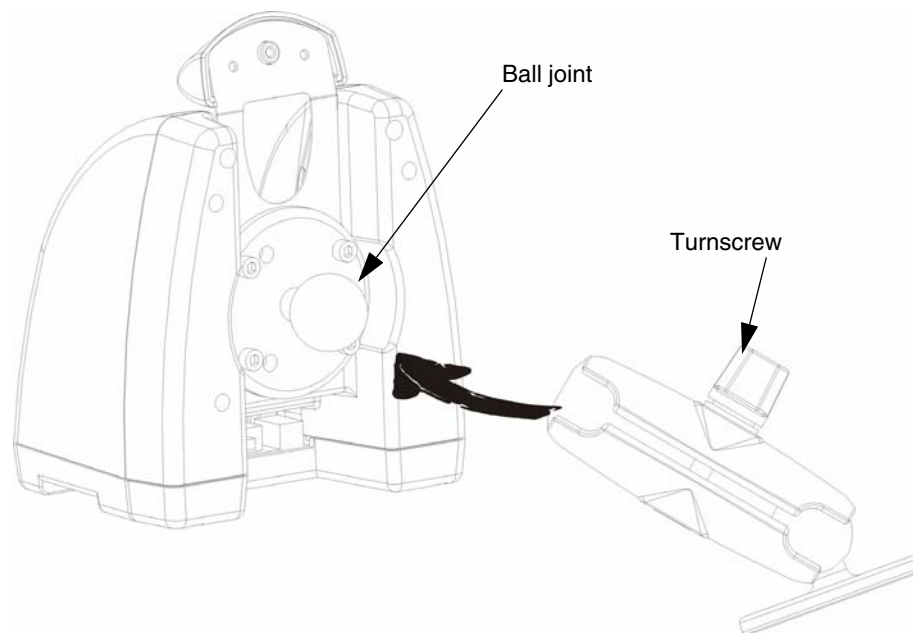
The Mobile IntelliBase RS-232 interface allows the Dolphin terminal to communicate to a personal computer, modem, or any standard RS-232 device using a standard serial cable and communications software.

The IrDA 1.0 software stack is integrated into the Mobile IntelliBase/Mobile Base to allow communication between the cradle and devices such as modems or printers that are not IrDA ready or do not communicate with a half duplex serial protocol. This allows any full or half duplex RS-232 device to communicate through the IntelliBase with no IrDA protocol software. See Tables 2 or 3 for the baud rate switch settings.

### *Installing The Dolphin Mobile IntelliBase*

#### **Mounting the Mobile IntelliBase Spring Arm Assembly**

The adjustable mounting bracket holds the terminal securely in place and gives the user a variety of options for mounting the Mobile IntelliBase. See the directions below for mounting the bracket.



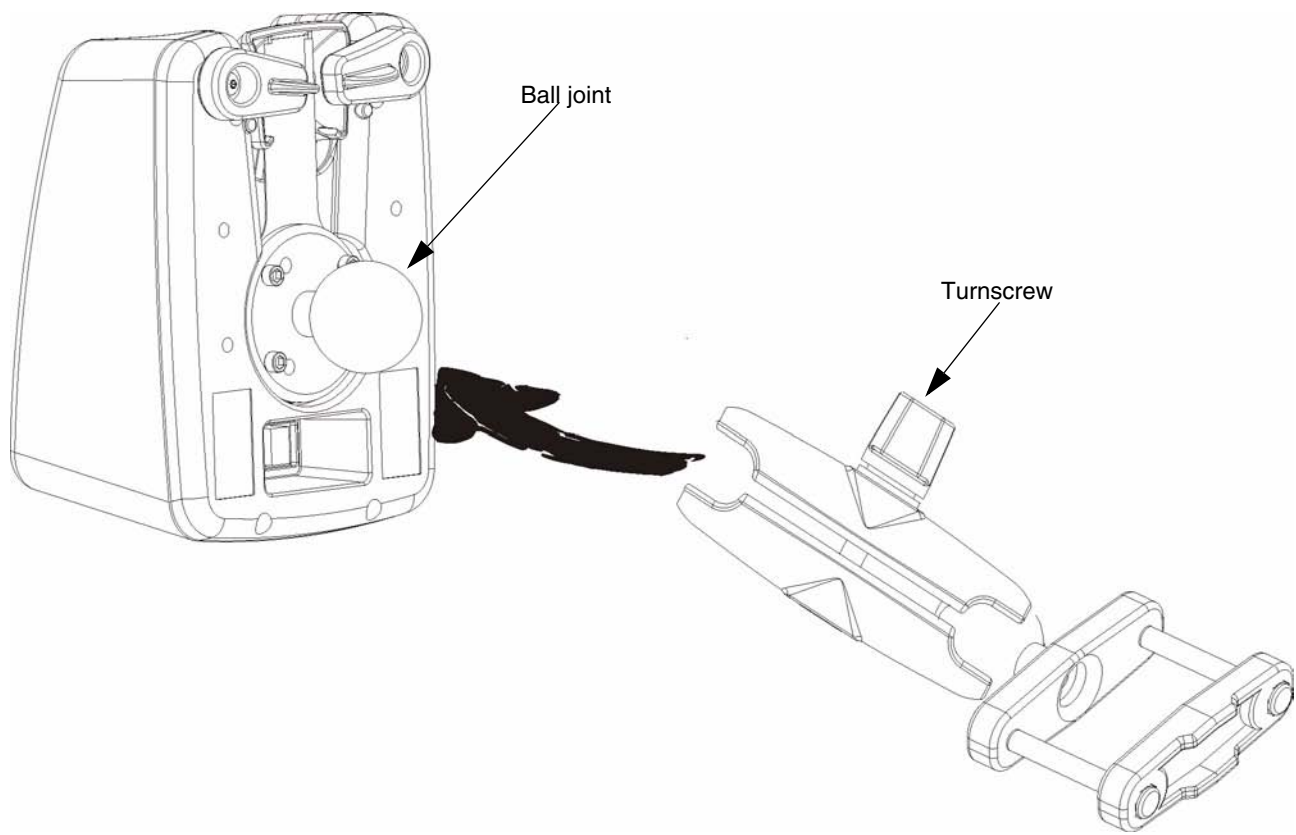
To attach the bracket:

1. Loosen the turnscrew located on the side of the bracket.
2. Attach the bracket to the ball joint on the back of the Mobile IntelliBase and tighten the turnscrew.

---

## *Installing The Dolphin Mobile Base*

The Mobile Base has two mounting options - a clamp style for in-premise applications and a standard RAM mount for other mobile applications that allow the Mobile Base to be mounted according to specific needs. The spring-arm assembly holds the terminal securely in place.



To attach the bracket:

1. Loosen the turnscrew located on the side of the bracket.
2. Attach the bracket to the ball joint on the back of the Mobile IntelliBase and tighten the turnscrew.

---

## Connecting the Cables

Connect the Mobile IntelliBase/Mobile Base to the host computer or other device by plugging an RS-232 serial cable into the RS-232 Communications Port on the rear of the cradle. Plug the other end of the RS-232 serial cable into the correct port on the host RS-232 device.

The wiring of your cable depends on whether the other device is set up as a DCE (Data Communications Equipment) or DTE (Data Terminal Equipment) device.

The Mobile IntelliBase/Mobile Base Communication Port is configured as a DCE device. To communicate with a DTE device such as a computer, use a standard (or straight-through) RS-232 cable. To communicate with a DCE device, use either a null modem adapter in line with a standard RS-232 cable, or a null-modem serial cable.

You can make your own cables by following the pin configuration in the chart below. To do so, you must determine if your host RS-232 device is 9-pin or 25-pin, and whether it is configured as a DCE or DTE device.

HomeBase /Host Port (DCE) Pin / Input Signal	IBM AT DB9 (DTE)	IBM XT DB25 (DTE)	Modem DB25 (DCE)
2 / (RD)	2	3	2
3 / (TD)	3	2	3
5 / (SG)	5	7	7
4 / (DTR)	4	20	6
6 / (DSR)	6	6	20
7 / (RTS)	7	4	5
8 / (CTS)	8	5	4

## *Supplying Power to the Dolphin Mobile IntelliBase and Mobile Base*

The Mobile IntelliBase and Mobile Base can both be powered from either a 12 -48 volt DC source. Power is connected to the input power connector located on the rear of the Mobile IntelliBase.

HHP recommends that you leave the Mobile IntelliBase connected to its power source at all times, so that it is always ready to use.

## *Setting the Baud Rate*

After connecting the cables and supplying power to the Mobile IntelliBase, set the baud rate switch. Refer to the Baud Rate Tables earlier in this section for guidance on setting the switch.

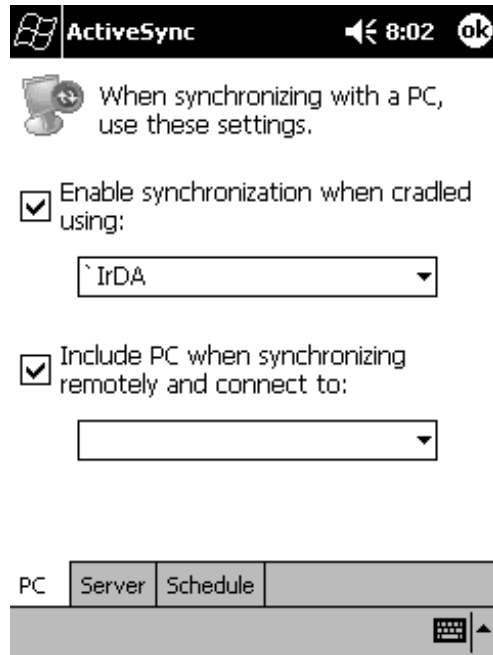
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## Configuring the Dolphin Terminal

The Communications Properties must be configured on Dolphin 7400/7450 terminal in order for it to communicate with the Mobile IntelliBase/Mobile Base.

To set Communications Properties:

1. Select **Start>Settings>Control Panel>Communication Settings**.
2. Select the **PC Connection** tab.



Communications Properties

3. Select the desired option for connecting to the desktop computer. Choose **IrDA** for Mobile IntelliBase IrDA connection and click **OK**.
4. Place the Dolphin in the Mobile IntelliBase.
5. On the Dolphin 7400 desktop, double-tap on ActiveSync.

## Developing Applications

Applications for the Dolphin 7400/7450 hand held computer are developed for the Microsoft® Windows® CE environment.

Microsoft® Windows CE is a compact, highly efficient, scalable operating system created for embedded systems and products. Its modular design allows developers flexibility to customize it for a variety of small footprint and mobile 32-bit devices. Windows CE supports various hardware peripherals, devices and networking systems. These include keyboards, touch screens, serial ports, Ethernet connections, and storage devices, such as PC cards.



The Windows CE kernel is the central module of the operating system. It is the part of the operating system that loads first, and it remains in main memory. Because it stays in memory, it is important for the kernel to be as small as possible while still providing all the essential services required by other parts of the operating system and applications. Data synchronization also is not supported as the Dolphin 7400/7450 terminal is not designed for use as a single target.

The Dolphin 7400/7450 terminal can be easily programmed with Microsoft® eMbedded™ Visual Tools (contains CE versions of Visual C++® and Visual Basic®) or Java™. Dolphin 7400/7450 supports Insignia Solutions® Jeode™ Java Virtual Machine to run Java-based applications on the terminal.



Windows CE also runs SQL Server™ CE, the powerful yet compact relational database that extends enterprise data management. SQL Server CE has the familiar feel of SQL Server, with tools, application programming interfaces (APIs), and Transact-SQL syntax that minimize development time.

To get started with developing applications for your Dolphin 7400/7450 terminal, see the electronic help file that comes with the SDK.

For more information about Windows CE, refer to these websites:

Microsoft Pocket PC ([www.pocketpc.com](http://www.pocketpc.com)) - General information

Chris De Herrera's Windows CE website ([www.cewindows.net](http://www.cewindows.net)) - General information and FAQs

MSDN ([msdn.microsoft.com/embedded](http://msdn.microsoft.com/embedded)) - Technical articles, developer documentation and downloads

VBCE.com ([www.vbce.com](http://www.vbce.com)) - eMbedded Visual Basic information and FAQs



## Warranty, Support and Service

### Limited Warranty

Hand Held Products, Inc., d/b/a HHP ("HHP") warrants its products to be free from defects in materials and workmanship and to conform to HHP's published specifications applicable to the products purchased at the time of shipment. This warranty does not cover any HHP product which is (i) improperly installed or used; (ii) damaged by accident or negligence, including failure to follow the proper maintenance, service, and cleaning schedule; or (iii) damaged as a result of (A) modification or alteration by the purchaser or other party, (B) excessive voltage or current supplied to or drawn from the interface connections, (C) static electricity or electro-static discharge, (D) operation under conditions beyond the specified operating parameters, or (E) repair or service of the product by anyone other than HHP or its authorized representatives.

This warranty shall extend from the time of shipment for the duration published by HHP for the product at the time of purchase ("Warranty Period"). Any defective product must be returned (at purchaser's expense) during the Warranty Period to HHP's factory or authorized service center for inspection. No product will be accepted by HHP without a Return Materials Authorization, which may be obtained by contacting HHP. In the event that the product is returned to HHP or its authorized service center within the Warranty Period and HHP determines to its satisfaction that the product is defective due to defects in materials or workmanship, HHP, at its sole option, will either repair or replace the product without charge, except for return shipping to HHP.

EXCEPT AS MAY BE OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER COVENANTS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, ORAL OR WRITTEN, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

HHP'S RESPONSIBILITY AND PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT. IN NO EVENT SHALL HHP BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND, IN NO EVENT, SHALL ANY LIABILITY OF HHP ARISING IN CONNECTION WITH ANY PRODUCT SOLD HEREUNDER (WHETHER SUCH LIABILITY ARISES FROM A CLAIM BASED ON CONTRACT, WARRANTY, TORT, OR OTHERWISE) EXCEED THE ACTUAL AMOUNT PAID TO HHP FOR THE PRODUCT. THESE LIMITATIONS ON LIABILITY SHALL REMAIN IN FULL FORCE AND EFFECT EVEN WHEN HHP MAY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH INJURIES, LOSSES, OR DAMAGES. SOME STATES, PROVINCES, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

All provisions of this Limited Warranty are separate and severable, which means that if any provision is held invalid and unenforceable, such determination shall not affect the validity of enforceability of the other provisions hereof.

The limited duration of the warranty for the Dolphin 7400 and Dolphin 7450 terminals is as described below:

- Terminals with an integrated imager are covered by a two-year limited warranty. Terminals with an ALR integrated laser engine are covered by a one-year limited warranty. If equipped with a touch screen display, the display is covered by a one-year limited warranty. If equipped with a Type II PCMCIA integrated radio card, the radio card is covered by a two-year limited warranty.

The limited duration of the warranty for the Dolphin HomeBase, IntelliBase, IntelliBase+, USB HomeBase, Mobile IntelliBase and QuadCharger is for one year.

The limited duration of the warranty for batteries is one year. The battery life will be greatly increased when following the specific battery instructions in the user guide. Rechargeable batteries are highly susceptible to "battery memory" and if instructions are not followed, the amount of hours of usage and the life of the battery are greatly reduced.

Batteries returned to HHP in this reduced state may or may not be replaced under this warranty.

Use only power adapters approved for use by HHP. Failure to do so may result in improper operation or damage to the unit and will void the warranty.

HHP, Inc. extends these warranties only to the first end-users of the products. These warranties are non-transferable.

### How Problems Should Be Handled

Should the Dolphin terminal or any of the peripherals prove to be defective within the stated warranty period from the date of purchase, return the product, as described in the RMA procedures below, and we will, at our option, repair or replace the product, to whatever extent HHP deems necessary to restore the product to proper operating condition, without any charge to you.

### Return Information

If you purchased the product from an Authorized HHP Reseller, contact the Reseller with the unit's serial number. Your Reseller will contact Hand Held, on your behalf, to arrange for the unit to be serviced.

If you purchased the product directly from Hand Held, or have been instructed by your Reseller to contact HHP directly, call the Customer Services Department in your area to request a Repair Maintenance Authorization (RMA) number.

---

**North America:**

(TEL) (800)-782-4263

(FAX) (704)-566-9904

**Latin America**

(TEL) (239)-263-7600

(FAX) (239)-263-9689

**Europe, Middle East and Africa:**

TEL) Int+31 (0) 40 29 01 600

(FAX) Int+31 (0) 40 24 25 672

**The United Kingdom:**

(TEL) Int+44 (0) 1 925 240055 or Int+353 1 216 0070

(FAX) Int+44 (0) 1 925 631280 or Int+353 1 925 6353

**Asia/Pacific:**

(TEL) Int+852-2511-3050 or 2511-3132

(FAX) Int+852-2511-1355

**Japan:**

(TEL) Int+81-3-5212-7392

(FAX) Int+81-3-3261-7372

You must have an RMA number to receive service from any of HHP's repair facilities. Failure to obtain an RMA number before shipping your product to this repair facility can delay the processing of your repair request.

When calling for service at any of our repair facilities, please be prepared to give the following information:

- -Product's type and serial number
- -Brief description of problem
- -Dated Proof-of-Purchase

Place the product in its original packaging with a copy of your original invoice and ship the product prepaid to the appropriate address below. **Write the RMA number on the mailing label under the address.**



---

**North and South America:**

HHP  
Products Services Department  
7510 East Independence Blvd., #100  
Charlotte, NC 28227-9411

**Japan Office**

Bon Marusan 8F  
3-5-1 Kanda-Jinbocho  
Chiyoda-ku  
Tokyo 101, Japan

**Europe, Middle East and Africa :**

Nijverheidsweg 9  
5627 BT Eindhoven  
The Netherlands

**Latin America Office**

5117 Castello Drive  
Suite 1  
Naples, FL 34103

**The United Kingdom :**

Dallam Court  
Dallam Lane Warrington  
Cheshire WA2 7LT  
United Kingdom

**Asia/Pacific**

10/F Tung Sun Commercial Centre  
194-200 Lockhart Road  
Wanchai, Hong Kong

If your equipment is still covered under the initial end-user's product warranty, please notify the Product Services Representative when you call. Please include a copy of the original invoice in the package to avoid possible service delays. For your protection, we recommend you insure any equipment being sent to HHP.

After repair or replacement of the equipment, HHP will ship the product, at our cost, to your location. Non-warranty repairs will be returned, at the customer's expense, unless otherwise requested. Units currently under a service agreement will be shipped per the service agreement.

Please make note of the RMA number (if required) before shipping and the product's serial number for future reference.

### ***How To Extend Your Warranty***

HHP offers a variety of service plans on our hardware products. These agreements offer continued coverage for your equipment after the initial warranty expires. For more information, contact your HHP sales representative, customer account representative or the Product Service Marketing Manager or your Authorized Reseller.

### ***Application Support***

If you have a question or problem with your Dolphin terminal or Dolphin peripheral, you can get technical assistance from HHP's Application Support department.

---

**North America:**

(TEL) 1-(800) 782-4263

8 a.m. and 6 p.m., Eastern Time, Monday through Friday

support@hnp.com

**Europe, Middle East and Africa:**

(TEL) Int+31-40 242 4486

9 a.m. - 5 p.m., Central European Time, Monday through Friday

euro\_support@hnp.com

**The United Kingdom:**

(TEL)+44 1925 240055

9 a.m. - 5:30 p.m., UK Time, Monday through Friday

euro\_support@hnp.com

**Asia:**

(TEL)Int+852-2511-3050 or 2511-3132

asia\_support@hnp.com

**Latin America:**

(TEL) (239) 263-7600

la\_support@hnp.com









## Appendix A

Use the keyboard shortcuts in the chart below to navigate the Dolphin 7400 and 7450 terminal keyboards.

**Windows Keyboard Shortcuts**

<b>Press</b>	<b>To</b>
CTRL + C	Copy
CTRL + X	Cut
CTRL + V	Paste
CTRL + Z	Undo
DELETE	Delete
CTRL + RIGHT ARROW	Move the insertion point to the beginning of the next word.
CTRL + LEFT ARROW	Move the insertion point to the beginning of the previous word.
CTRL + DOWN ARROW	Move the insertion point to the beginning of the next paragraph.
CTRL + UP ARROW	Move the insertion point to the beginning of the previous paragraph.
SHIFT with any of the arrow keys	Select more than one item in a window or on the desktop, or select text within a document.
CTRL+A	Select all.
ALT+ENTER	View properties for the selected item.
ALT+TAB	Switch between open items.
ALT+ESC	Cycle through items in the order they were opened.
ALT + Tap on Touch screen	Right click
CTRL+ESC	Display the <b>Start</b> menu.
ALT+Underlined letter in a menu name	Display the corresponding menu.
Underlined letter in a command name on an open menu	Carry out the corresponding command.
BACKSPACE	View the folder one level up in My Computer or Windows Explorer.
ESC	Cancel the current task.

---

## Using the Modifier Keys

The Dolphin 7400/7450 terminal keyboard features the standard Windows modifier keys, **Alt**, **Ctrl** and **Shift**. The **Shift** key only modifies the next key pressed; it must be pressed before each key you wish to make **lower** case. For multiple **lower** case characters, hold the Shift key down with one hand while typing with the other. Functions of the Alt and Ctrl keys are dependent on the software application in use.

There are two additional modifier keys located on the bottom row of the keyboard. The Red and Blue keys only modify the next key pressed; these keys must be pressed and released before each key you wish to modify to the Blue or Red case. Use these keys in combination with other keys to type the corresponding color-coded characters and functions. See the charts below for key combinations that access the functions and special characters using these keys.

### 43-Key Alpha/Numeric Keyboard

**Blue Key Functions & Characters For 43-Key Alpha/Numeric Keyboard**

Key Combination	Function/Special Character
Double tap Blue key	Activate/Deactivate Mouse Utility
Blue key + D	- (minus)
Blue key + H	_ (underscore)
Blue key + L	=
Blue key + P	+
Blue key + Q	;
Blue key + R	:
Blue key + S	*
Blue key + T	/
Blue key + U	@
Blue key + X	\

**Red Key Functions & Characters For 43-Key Alpha Shifted Numeric Keyboard**

Key Combination	Function/Special Character
Red key + ESC	Lightens Contrast*
Red key + TAB	Darkens Contrast*
Red key + SFT	Toggles on Caps Lock
Red key + Q	F1
Red key + R	F2
Red key + S	F3



---

### Red Key Functions & Characters For 43-Key Alpha Shifted Numeric Keyboard

Key Combination	Function/Special Character
Red key + T	F4
Red key + U	F5
Red key + V	F6
Red key + W	F7
Red key + X	F8
Red key + Y	START
Red key + Z	INS (insert)
Red key + SP	BKSP (backspace)
Red key + BACKLIGHT KEY	DEL (delete)

\* Exit the mouse utility prior to adjusting the contrast.

### *Key Combinations*

Use the key combinations listed below to access certain keyboard functions or to use special characters that are not defined on the 43-key version of the Dolphin 7400/7450 keyboard.

#### Key Combinations Using NUM & SFT Keys

Key/Key Combination	Function/Special Character
NUM + SFT + A	!
NUM + SFT + B	@
NUM + SFT + C	#
NUM + SFT + E	\$
NUM + SFT + F	%
NUM + SFT + G	^
NUM + SFT + I	&
NUM + SFT + J	*
NUM + SFT + K	(
NUM + SFT + M	>
NUM + SFT + N	)
NUM + SFT + O	<

---

### Key Combinations Using Blue & SFT Keys

Key/Key Combinations	Function/Special Characters
Blue + SFT + T	?
Blue + SFT + X	

### Miscellaneous Key Combinations

Key/Key Combinations	Function/Special Characters
NUM + ALT + 3 + 9*	'
NUM + ALT + 3 + 4*	"

\*Hold the ALT key down as you type in the numbers.

## *35 Key Numeric/Alpha*

### Blue Key Functions & Characters For 35-Key Numeric/Alpha Keyboard

Key Combination	Function/Special Character
Double tap Blue key	Activate/Deactivate Mouse Utility
Blue key + .	+
Blue key + ,	-
Blue key + F1	;
Blue key + F2	:
Blue key + F3	/
Blue key + F4	\
Blue key + SP	-
Blue key + DEL	@
Blue key + 0 (zero)	=

---

## Key Combinations

Use the key combinations listed below to access certain keyboard functions or to use special characters that are not defined on the 35-key version of the Dolphin keyboard.

### Key Combinations Using ALPHA & SFT Keys

Key/Key Combination	Function/Special Character
ALPHA + SFT + 1	!
ALPHA + SFT + 2	@
ALPHA + SFT + 3	#
ALPHA + SFT + 4	\$
ALPHA + SFT + 5	%
ALPHA + SFT + 6	^
ALPHA + SFT + 7	&
ALPHA + SFT + 8	*
ALPHA + SFT + 9	(
ALPHA + SFT + 0	)
ALPHA + SFT + . (period)	>
ALPHA + SFT + , (comma)	<

### Miscellaneous Key Combinations

Key/Key Combinations	Function/Special Characters
ALT + 3 + 9*	'
ALT + 3 + 4*	"

\*Hold the ALT key down as you type in the numbers.

## 56 Key Full Alpha Numeric

### Blue Key Functions & Characters For 56-Key Full Alpha Numeric Keyboard

Key Combination	Function/Special Character
Double tap Blue key	Activate/Deactivate Mouse Utility
Blue key + .	+

**Blue Key Functions & Characters For 56-Key  
Full Alpha Numeric Keyboard**

<b>Key Combination</b>	<b>Function/Special Character</b>
Blue key + ,	-
Blue key + A	;
Blue key + B	:
Blue key + C	/
Blue key + D	\
Blue key + E	-
Blue key + F	@

**Red Key Functions & Characters for 56-Key  
Full Alpha Numeric Keyboard**

<b>Key Combination</b>	<b>Function/Special Character</b>
Red key + ESC	Lightens Contrast*
Red key + TAB	Darkens Contrast*
Red key + SFT	Toggles on Caps Lock
Red key + A	F1
Red key + B	F2
Red key + C	F3
Red key + D	F4
Red key + E	F5
Red key + F	F6
Red key + G	F7
Red key + H	F8
Red key + I	F9
Red key + J	F10
Red key + K	F11
Red key + L	F12
Red key + M	F13
Red key + N	F14
Red key + O	F15

**Red Key Functions & Characters for 56-Key  
Full Alpha Numeric Keyboard**

<b>Key Combination</b>	<b>Function/Special Character</b>
Red key + P	F16
Red key + Q	F17
Red key + R	F18
Red key + S	F19
Red key + T	F20
Red key + U	F21
Red key + V	F22
Red key + W	F23
Red key + X	F24
Red key + Y	Z

\* Exit the mouse utility prior to adjusting the contrast.

***Key Combinations***

Use the key combinations listed below to access certain keyboard functions or to use special characters that are not defined on the 56-key version of the Dolphin keyboard.

**Key Combinations Using SFT & Number Keys**

<b>Key/Key Combination</b>	<b>Function/Special Character</b>
SFT + 1	!
SFT + 2	@
SFT + 3	#
SFT + 4	\$
SFT + 5	%
SFT + 6	^
SFT + 7	&
SFT + 8	*
SFT + 9	(
SFT + 0	)
SFT + . (period)	>
SFT + , (comma)	<

---

### Miscellaneous Key Combinations

Key/Key Combinations	Function/Special Characters
ALT + 3 + 9*	'
ALT + 3 + 4*	"

\*Hold the ALT key down as you type in the numbers.

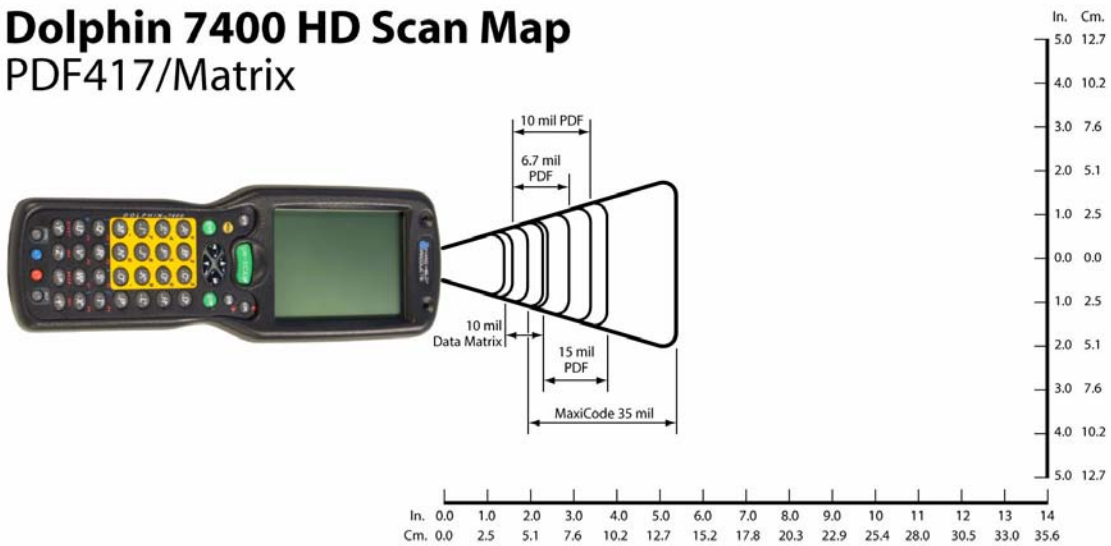
# Appendix B

## Dolphin 7400/7450 Scan Maps

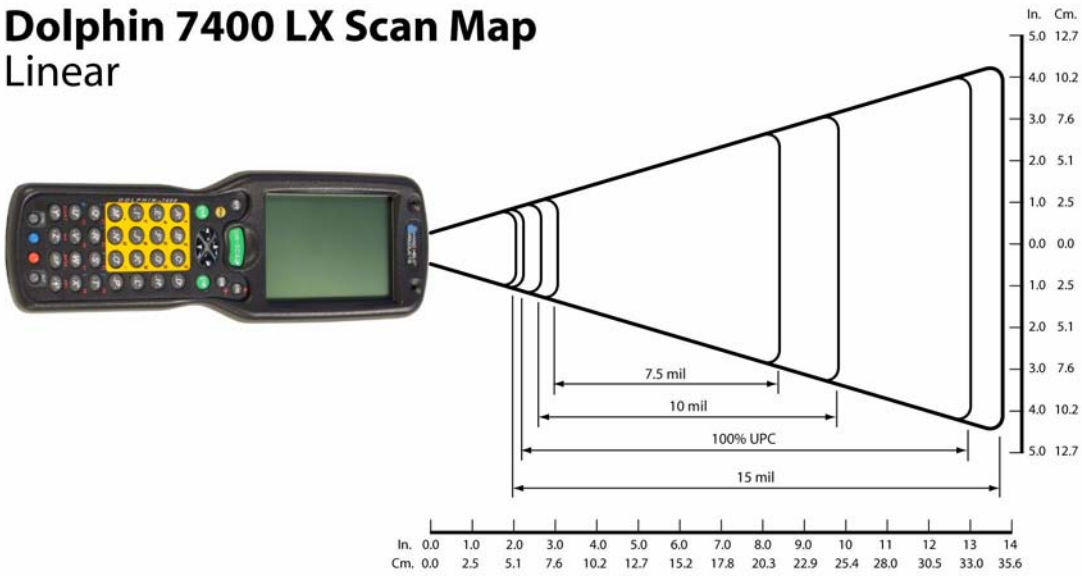
### Dolphin 7400 HD Scan Map Linear



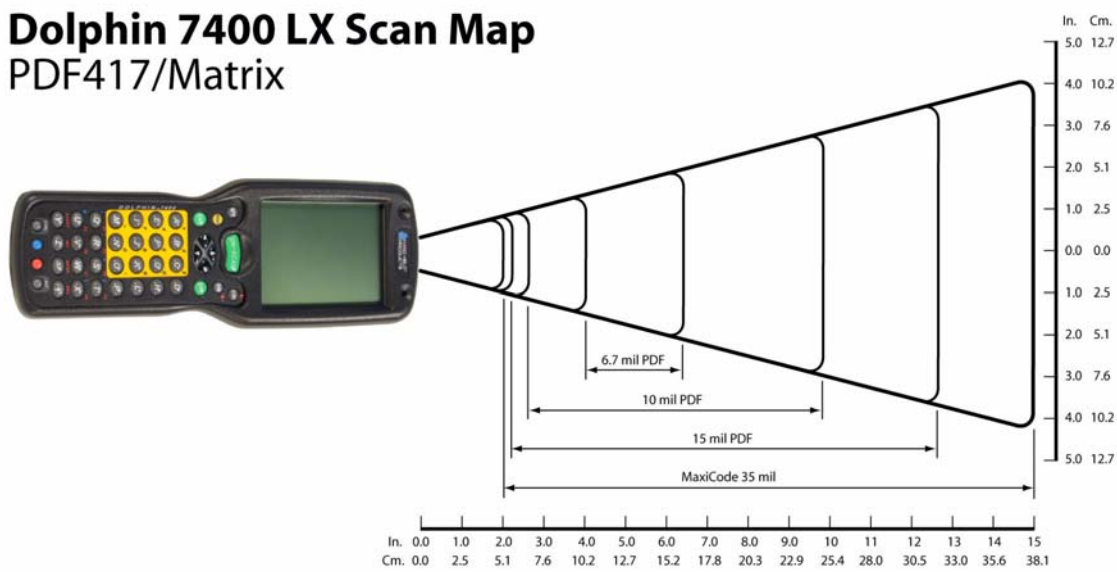
### Dolphin 7400 HD Scan Map PDF417/Matrix



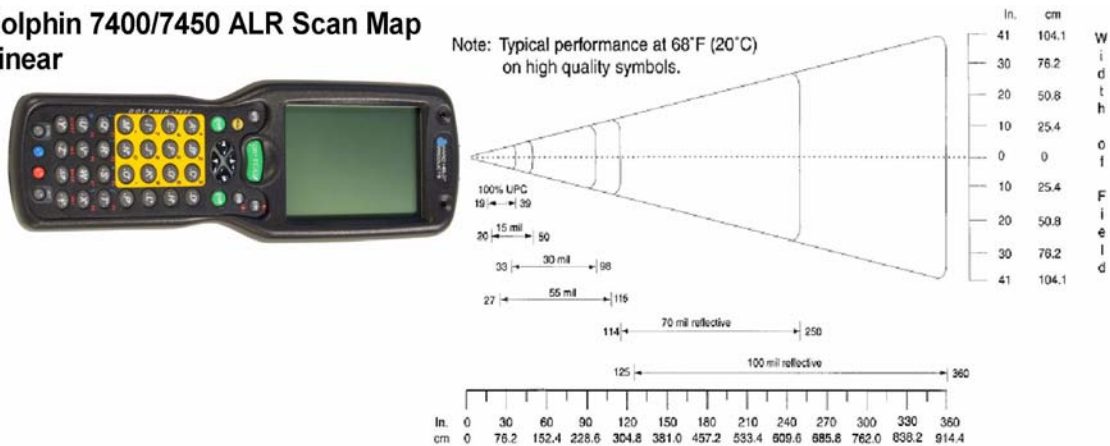
## Dolphin 7400 LX Scan Map Linear



## Dolphin 7400 LX Scan Map PDF417/Matrix

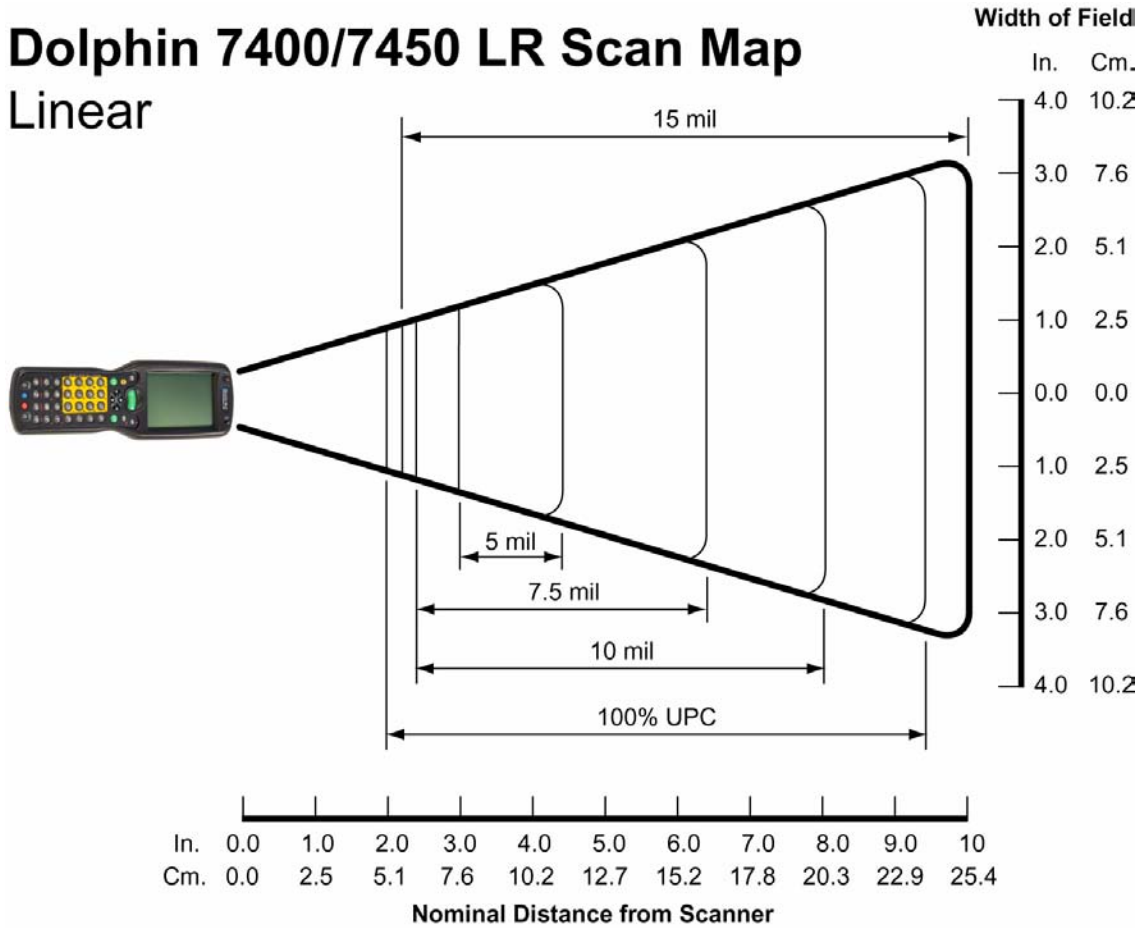


## Dolphin 7400/7450 ALR Scan Map Linear

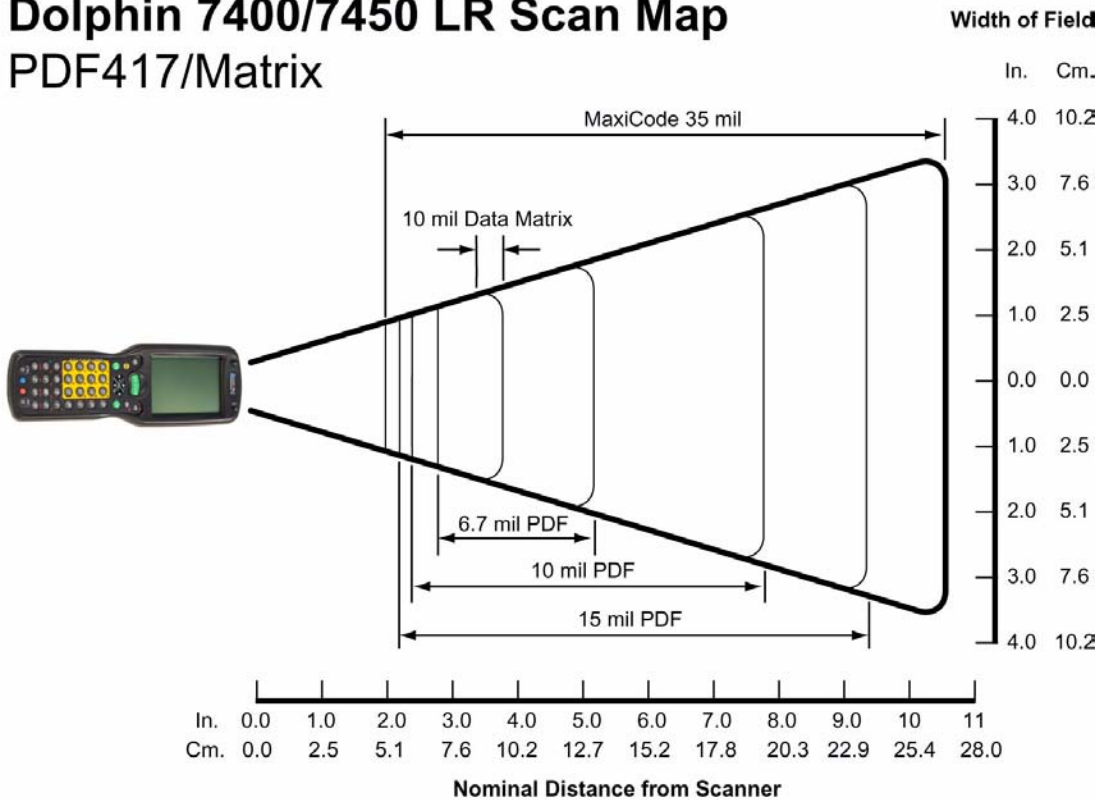




# Dolphin 7400/7450 LR Scan Map Linear



# Dolphin 7400/7450 LR Scan Map PDF417/Matrix







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Skaneateles Falls, NY 13153-0208